

Chicago-Northwestern Report. Feeding Bees in Winter.  
(See page 55.) C. P. DADANT.

# AMERICAN BEE JOURNAL

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CHICAGO, ILL., JAN. 28, 1904.

No. 4.



APIARY OF L. HIGHBARGER, OF OGLE CO., ILL.  
(See page 52.)



APIARY OF  
GEO. L. SEWARD, OF MARION CO., OREG.



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## TESTIMONIALS.

"I have some of your hives in use, and I find they give more satisfaction than any other hive in the market. If all goes well I will be ordering more of them before long."  
Cape Colony, South Africa. R. J. KING.

The bee-fixtures that I ordered of you came to hand in good order, and are the finest work I ever saw. Every thing went together like the leaves of a book. The supers fit my Quinby hives perfectly, and are sure to give better satisfaction, although costing a little more than what I could have got them for from your agent in Portland, Oreg. Thanks for your promptness in filling my order for odd sizes.  
Fidalgo, Wash. H. A. MARCH.

"I have been using the fence separator, and find them much superior to solid goods. The 450 shallow hives you made for me are giving good satisfaction."  
Vigo, Tex. J. E. CHAMBERS.

I have just now unpacked and examined the goods sent by you, and am greatly pleased with the lot.  
Scottsville, Ariz. W. H. GILL.

These hives have proven very satisfactory, and I now wish 25 more of the same kind.  
Tecumseh, Mich. P. W. A. FITSIMMONS.

While writing you this, I must say the hives I ordered of you were first-class in every particular, and not one mistake.  
Artemisa, Cuba, W. I. F. L. POWERS.

A. I. Root Co., Medina, Ohio, U. S. A.

Dear Sirs:—The shipment of hives and bee-supplies, which you sent me, arrived in excellent condition, and every one who has seen them, is delighted with the accuracy and precision of the workmanship of every detail, both of the goods and the manner in which the order was executed.

Yours very truly,  
Cape Colony. FREDERIC T. BIOLETTI.

"People are beginning to change their bees to the Root hive. My trade being so much better this season than previous years."  
Pennville, Ind. Yours for service, ALFRED GRISSOM.

THE A. I. ROOT COMPANY, Medina, Ohio.

Gentlemen:—I am well pleased with your prompt way of doing business. The goods are just simply nice. Many thanks.  
Yours truly,  
JOHN D. A. FISHER.

The goods ordered have arrived, and are very fine, giving entire satisfaction, as is invariably the rule when ordering from you. Allow me to thank you for your promptness which I appreciate more this time than usual, as I needed the goods very much. I can get goods from your factory in about the same time that it takes to receive a reply from some parties at no greater distance.  
Herkimer, N. Y. W. A. KLOCK.

Your chaff hive, the last one, is the thing. I had them out with no protection, not a fence or tree, and the north wind howling around them with mercury at 42 degrees below, and that wide entrance all open. I did not expect them to come through. It seemed that enough arctic cold would come in the entrance to freeze brass bees; but these came out strong in spring.  
Marion, S. D. S. J. HARMELING.

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# AMERICAN BEE JOURNAL

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CHICAGO, ILL., JAN. 28, 1904.

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## Editorial Comments

### A Double Number This Week.

Did you notice it? Just 32 pages of the old American Bee Journal this time. But we don't suppose any one will object to it, if we don't.

This number should serve for two pretty good meals of apian literature. And the prospects are for a few more double numbers later on. We think it will not be our fault if any reader does not get "value received" for his investment of a dollar for the American Bee Journal for 1904.

### Is Disposition Inherited from the Drone?

EDITOR AMERICAN BEE JOURNAL—

Can't you get an article from Prof. Benton as to the basis for his belief—recently expressed in your columns—that the drone gives the trait of gentleness or crossness? Some of us would like to know if he can prove it.

ROXBURY.

It might not be an easy thing to prove directly from the bees themselves that the trait of gentleness is inherited from the drone, even though it might be the accepted belief that, in general, traits of character are inherited from the male parent. Is there, however, entire agreement upon this? and is there anything like positive proof in the case? Space will be gladly given to Prof. Benton, or any one else who can answer satisfactorily.

### Plain Board Covers.

These are not so much in use as they were a few years ago. The objection is made that in spite of cleating they warp, and even if held rigidly by iron cleats without the possibility of warping, they will still twist. But aside from the objections urged against them, Editor Root gives another reason why they are going out of use. He says in *Gleanings in Bee-Culture*:

"The fact is, clear wide boards in sufficient quantities to care for the trade for such covers can not be bought at any price. The big pine trees are nearly all gone. Manufacturers have simply been compelled to adopt a roof covered with paper or metal, or some form of three-piece design that would permit of the use of one or more narrow boards spanned by a ridge-piece to close up the cracks. Such boards are readily obtainable at a moderate price, because the small trees are not all cut out yet."

### Performance Before Prettiness.

There are not a few who favor breeding from queens whose colonies have distinguished themselves in the matter of storing without regard to pedigree or color. With proper precautions it may be a good thing to do. "A York County Bee-Keeper" says in the *Canadian Bee Journal*:

"This brings to my mind my experience with a colony of genuine 'blacks' the past two seasons. A year ago they stored something over 350 pounds, and the past season over 250 pounds of choice clover honey, never swarming either year. Although they are quite irritable to work with, yet this fall I took extra care to put them in good condition for wintering, for notwithstanding the fact that there are some choice queens of both the Italian and Carniolan races in that yard, I would not care if the whole apary were of the strain mentioned, even if I did have a little extra stinging while working with them."

### Big Average Yields of Honey.

Estimating 100 pounds of comb honey as equaling 150 pounds of extracted, and reducing all to extracted, the following large average yields per colony may be gleaned from the report of the National Association:

Harry Lathrop, Wis. . . . .	125	H. W. Lee, Ill. . . . .	155
Ernest J. Smale, Calif. . . . .	127	Byron Whitney, Ill. . . . .	156
Jos. Scroggins, Mo. . . . .	127	E. J. Baxter, Ill. . . . .	158
Chas. A. Brown, Calif. . . . .	128	W. S. King, Calif. . . . .	161
Mrs. L. S. Coleman, Utah . . . . .	129	Robert Taylor, Ill. . . . .	169
Harry K. Warren, Nev. . . . .	130	Andrew Nelson, Utah. . . . .	172
D. C. McLeod, Ill. . . . .	133	Geo. W. Rowley, Calif. . . . .	178
H. J. Chapman, Iowa. . . . .	133	Henry Ahlers, Wis. . . . .	195
N. E. France, Wis. . . . .	135	J. A. Delano, Calif. . . . .	200
C. P. Dadant, Ill. . . . .	136	Ole Sorenson, Utah. . . . .	200
C. H. Pierce, Wis. . . . .	137	Christian Nielson, Utah . . . . .	223
Anthony Schmidt, Wis. . . . .	137	Rev. H. A. Winters, Wis. . . . .	225
Mack Shrout, Ill. . . . .	141	W. T. Brite, Tex. . . . .	230
N. Louffburrow, Kan. . . . .	143	S. S. Brite, Tex. . . . .	230
W. D. Moffatt, Calif. . . . .	145	Dr. C. C. Miller, Ill. . . . .	231
Rall Baker, Wis. . . . .	145	C. K. Ercanbrack, Calif. . . . .	233
E. B. Tyrrell, Mich. . . . .	148	G. W. Vangundy, Utah. . . . .	296
L. Stachelhausen, Tex. . . . .	148	L. A. Hammond, Md. . . . .	388
J. T. Hairston, Ind. Ter. . . . .	150	Rev. R. B. McCain, Ill. . . . .	395
Dr. H. Copley, Ill. . . . .	153	C. H. Stordock, Wis. . . . .	411

Two others are given with figures far exceeding any of these: Franklin Young, of Utah, 1333, and W. A. Pain, Haw. Is., 1500; but there must surely be a mistake in some of the figures that would give such averages.

It may be observed that the increase throughout the list is quite gradual till it comes to the last four, and they seem to be in a class by themselves. We may account for the unusual averages of Messrs. Hammond and McCain partly by the fact that the former had only 4 colonies and the latter 3; but Mr. Vangundy had 109 colonies which yielded 175 pounds comb and 32,000 extracted, while Mr. Stordock, with 94 colonies, had the very remarkable yield of 15,500 pounds comb honey and 15,400 pounds extracted!

### Tight vs. Loose Horizontal Wiring.

Some insist that when brood-frames are wired horizontally the wires must be left slack if there is to be no buckling or sagging, while others say there is no trouble with horizontal wires tightly drawn. M. W. Shepherd is perhaps the first to give the philosophy of the buckling in some cases, and thinks if the end-bars are sufficiently thick the trouble will disappear. He gives in *Gleanings in Bee-Culture* this explanation for the buckling that occurs with tight wiring:

"The end-bars, only 1/4-inch thick, are too light. When you pull the wire tight, the end-bars spring in as the bees keep adding weight. The end-bars spring in more and more; and how can buckling be helped? The wire slacks, and that tells the story. This is how it works with us."

### Read Up Your Bee-Papers Now.

Last summer you were so busy that you hadn't time to read your bee-papers carefully. Read them over at your leisure now, and you may find a good many new things in them.

### Prime Swarms Settling Low.

In a first prize article in the *Australasian Bee-Keeper*, in his instructions for hiving a prime swarm, George W. Commins says to get a hive ready with frames, starters or foundation, bottom-board, quilt,



all complete, "carry to where the bees have clustered, by putting an empty box or step-ladder under them you can raise the hive until the frames touch the cluster, then brush them onto frames." "This method," says he, "will answer for all early swarms, because old queens always settle near enough to the ground to get the hive up to the cluster."

The question is: Do prime swarms on this side the globe, when they have opportunities for settling on higher places, always cluster so low that they may be reached from a box or step-ladder? Do they generally?

### The Veterans Read the Bee-Papers.

Those who have already achieved success at bee-keeping are the very ones who take the most bee-papers and do the most reading. The time never comes when one has finished learning all there is to be learned about bee-keeping. The beginner who gives the most diligent study to the pursuit upon first entering it, is likely to be the one farthest on when he becomes a veteran.

## Miscellaneous Items

**Mr. Geo. L. Seward's Bee-Shed Apiary** is shown on the first page. He says it is "the best protection for hives in this locality. The shed is 45 feet long, 7 feet wide, and gives room enough to stand erect, or run a wheelbarrow behind the hives."

**The Apiary of Mr. Highbarger** is pictured on the first page this week. It contained 60 colonies the past season, and produced 3000 pounds of comb honey. Mr. Highbarger is one of the older bee-keepers, and has been a constant reader of the American Bee Journal for many years.

**An Apiarian "Conumberfum."**—We found the following in one of our exchanges last week:

Why is a bee-hive like a bad potato? **Ans.**—A bee-hive is a bee holder; a beholder is a spectator; and a specked 'tater is a bad 'tater.

We might have sent the question to Dr. Miller, and then afterward compared his answer with the one given above. But we knew pretty well what his answer would be. Simply, "I don't know."

**Split Sections** are what Mr. A. Coppin used in his exhibit at the Illinois State Fair, as mentioned on page 20. There was an error in the size. His sections are  $4\frac{1}{4} \times 5$  instead of  $4 \times 5$ , as stated. He has the comb foundation made  $5 \times 17$  inches, and puts the full sheet between the halves of a row of 4 sections all at one time; then by wedging up the sections the foundation is held firmly in place, and also a full sheet of foundation is thus in each section. There is no falling down of full sheets or starters in this way. Mr. J. C. Wheeler and others follow the same plan, and like it.

**The Chicago-Northwestern Convention Report** is begun in this issue. The whole of the report is twice as long as that of the National held at Los Angeles. It was an enthusiastic gathering here in Chicago early last December. They did business all the time. Any one who fails to attend an annual meeting of the Chicago-Northwestern misses a good, profitable time. Every bee-keeper within 200 or 300 miles of Chicago ought to make a desperate effort to be present. There is no good reason why Chicago should not have the largest annual meeting of bee-keepers held anywhere in the United States.

**The Onondaga County Bee-Keepers' Association** met in Syracuse, N. Y., Thursday Jan. 14, 1904. Pres. S. D. House occupied the chair. Owing to blockades of snow the attendance was rather small, but those present were naturally the most enthusiastic members. Mr. Irving Kenyon gave an address on improved methods of producing comb honey, in which were many good points, and Mr. W. J. Morgan gave his experience in carbonizing comb honey to destroy wax-worms. A lively discussion followed.

At the afternoon session, N. E. France spoke on the work of the

National Bee-Keepers' Association, and W. Z. Hutchinson conducted a question-draw.

In the evening, Prof. Thwing, of Syracuse University, spoke on questions connected with location; R. F. Holtermann on the prevention of swarming, and N. N. Betsinger, Moderator, in his report urged the production of a better class of honey. Officers the same as last year were elected, except that the Moderator is Mr. Kenyon.

We hope soon to publish a report of this convention.

**An Inspector's Association** for mutual help and exchange of ideas was organized at Syracuse, N. Y., recently, by Messrs. France, Hutchinson, Stewart, Stevens, West, and Wright, inspectors of bee-diseases. It will probably be made national. Such an organization should be able to help secure laws against bee-diseases in those States where no such laws exist. We wish great success to the new organization. May it never need inspection!

**Mr. N. Staininger**, of Cedar Co., Iowa, was so unfortunate as to have had two daughters in the awful Iroquois Theatre fire, which occurred here in Chicago, Dec. 30. They were badly burned, and were not able to leave the hospital for two or three weeks after the fire. As most of our readers know, there were about 600 people burned to death, and several hundred others burned and injured so that they will likely be disfigured or maimed for life. Aside from the fire danger, we think the great majority of theatrical performances are pretty good things to stay away from. We attended our last just 20 years ago next April, in company with Mr. Thomas G. Newman. We have never had any desire to go again.

**Mr. Howard Miller**, editor of The Inglenook Magazine, some time ago visited the home and apiary of Mr. J. E. Thompson, Sr., in Kane Co., Ill. As a result, a very readable article on bees and honey appeared in The Inglenook for Aug. 25. It is always a good thing for bee-keepers to invite the editors of local newspapers or magazines to inspect their apiaries. It almost invariably results in the publication of an article on the use of honey, which will help increase its demand. All such things help the bee-keepers. Also, the information about the keeping of bees and the production of honey is a good thing to have scattered among the people. Don't forget to invite your local editor to spend a half day in your apiary next season. Then see to it that he takes home with him a nice little memento that will keep him and his family sweet for a week or two.

**The New York State Association of Bee-Keepers' Societies** met in Syracuse Friday, Jan. 15, 1904, Pres. W. F. Marks occupying the chair. Among those present were General Manager N. E. France, W. Z. Hutchinson, Chas. Stewart, Mortimer Stevens, N. D. West, and W. D. Wright, foul brood inspector in New York State, and R. F. Holtermann and Morley Pettit, of Canada.

In his opening address Pres. Marks laid particular stress on the enforcement of the pure honey law. Other addresses were given by N. E. France on diseases of bees, N. D. West on foul and black brood, R. F. Holtermann on marketing honey, and O. L. Hershiser on crop reports.

The staff of officers were all re-elected.

We expect to publish a report of this convention later.

**Mr. A. T. Cook**, of Hyde Park, N. Y., is in the seed business. His catalog is unique. He is also interested in the crop of boys and girls that are being brought up in this country. That being the case, he has scattered all through his seed catalog some good advice for young people, as well as for older folks, too. Here are a couple samples:

TO MY FRIENDS—THE BOYS.

Please do not use tobacco. It will enslave your mind, defile your body, and waste your money. If you have begun—take my advice and stop at once, and you will be grateful all the days of your life.

Be temperate. Shun the deadly, soul-destroying saloons. Let your motto be, "Touch not, Taste not, Handle not the Intoxicating Cup." Be brave enough to be above temptation, and dare to do the right.

Your friend, A. T. Cook.

We can never be too careful what the seed our hands shall sow; Love from love is sure to ripen, hate from hate is sure to grow. Seed of good or ill we scatter heedlessly along our way, But a glad or grievous fruitage waits us at the harvest day.



## Contributed Articles

### Feeding Bees in Winter—Sugar Candy

BY C. P. DADANT.

"I have a colony of bees that has been neglected and is very light, I do not believe that they have honey enough to last them to the end of the month. How would you feed them? Would you advise using the Hill atmospheric bee-feeder, which you have recommended?"—ILLINOIS.

Feeding bees in the winter after they have ceased to fly has always been a risky task. Even if the weather is warm enough for the bees to be able to go about the hive a little, if they are fed they are induced to fly out more or less, for the feeding of liquid food gives them the idea that there is something to be found in the field. But if the weather is cold, they are unable to reach the food, or, if they can reach it, they are apt to stir about and some of the bees will get chilled by leaving the cluster. The feeding of liquid food, unless it is in exact quantities so as to leave no residue in their intestines, will compel them to seek flight. The more liquid the food, the more necessary it is for them to be at liberty to take wing.

We would therefore deprecate the feeding of honey or sugar syrup in the hive in winter. But there is a method by which bees may be fed sufficiently to keep them alive till the weather is warm enough for them to take and use liquid food. It is by feeding candy. This food is taken with more difficulty by the bees than sugar syrup or honey, and they seem to use it only as far as their immediate needs require. It does not excite them, does not prompt them to leave the cluster in search of more, in fact it seems to be to them as that much sealed honey, to be used when they want it. For it is a fact well known to apiarists, that although honey and sugar syrup fed in the liquid form in any sort of feeder cause the bees to stir, and promote and increase breeding, the same quantity of honey furnished to them in clean, sealed combs does not excite them, and they use it sparingly as needed, just as they would if it was their own stores.

This candy for bee-feed is not a new thing. The first suggestion of it belongs to a German apiarist—Weigel, of Silesia—who, more than half a century ago, recommended its use, and it was very much commended by German apiarists. The method of preparing it was given in the early editions of Langstroth. He recommended brown Havana sugar mixed with enough water to dissolve it, and boiled until the water was evaporated. Later it has been found much better to use the best granulated sugar with as little water as possible. Stir this constantly while heating, so that it will not burn, for burnt sugar is not nourishing, and would be a dead weight on their stomachs, and therefore much worse than no food at all. To know when it is done, all that is required is to dip your finger, first in cold water, then into the syrup. If what adheres to the finger is brittle, it is boiled enough.

It is then poured into shallow pans or on thin paper, and allowed to form into cakes. The pan should be slightly greased to keep it from sticking. The cakes are then broken into pieces of what ever size you may wish, and placed over the cluster in the hive. The quantity of such candy to be given to the bees need not be very great. It is very rich food, does not contain more moisture than they require, and so there is no loss. Three or four pounds will help a colony along quite a while, though of course very much depends upon the strength of the colony and the temperature.

The feeding of bees in this way, on their summer stands, is not generally successful because the bees are often unable to move owing to the cold. So they may starve almost in reach of the food, unless it is given on a warm day, when they will be able to move up to it. Of course, the space above the feed must be kept warm, that is, the upper story must not be left empty. On the contrary, it would best be filled with a cushion or some absorbents which although helping to remove the moisture will nevertheless prevent a current of cold air from passing through.

A much better way yet is to remove the colony to the cellar. It is not necessary to have a special cellar. One or two destitute colonies may be kept through the cold weather,

in a dark corner of any ordinary cellar. The main requirements are quiet and darkness. If the cellar is too light, a very efficient partition may be made by hanging an old carpet between the hive and the light. The greatest objection to cellars is the warmth, generated by the bees, which causes them to be restless; but a cellar that will keep potatoes without freezing will keep two or three colonies very nicely, for their warmth is insufficient to raise the temperature.

Usually, destitute colonies are weak, and such colonies are easily carried in and out. They are not heavy, and not easily aroused. We have kept small colonies often in an ordinary cellar with the hive-cover entirely off, placing the candy over the frames and simply covering the hive with a thick cloth. So, without much trouble, the condition of the bees can be ascertained at any time, and more feed may be added, by using the precaution of avoiding a jar, that would disturb them.

Honey-sugar candy, or what is called the "Scholz" candy, or "Good" candy—thus named from the two persons who first recommended it, Mr. Scholz in Germany, and Mr. Good in the United States later—is also very good bee-feed. It is used mainly in mailing of queen-bees, or transporting of colonies that are without food. This candy is made by heating a little honey and mixing with it as much pulverized sugar as it will absorb, until the mass is hardened to a thick paste. The honey is heated in order that it may absorb the more sugar. If it were not heated, it would soften when placed under the influence of the bees' warmth, and might liquefy enough to run. In either case it is very important not to overheat the honey or the sugar, and the very best grade of either must be used so as to avoid the feeding to the bees of any foreign substance that would increase the load in their intestines during the time of their confinement.

Hancock Co., Ill.

### Observatory Hives for Learning Bee-Habits.

BY ALLEN LATHAM.

WE may read all about the actions of bees inside their hives and accept as truth all that we read. It is thus that error gets well-grounded until a later observer of independent thought comes forward with the truth (as he sees it). Possibly both observers are right, at least saw the same thing. Why, then, do they not agree? Presumably because they interpret differently. After having interpreted an action in a certain way, that observer will hereafter have perverted vision.

The late controversy between Messrs. Dadant and Miller was a source of enjoyment, and fun as well, to me. Neither one (in my opinion) was wholly right or wholly wrong, and in some instances, surely, they agree without realizing it. That is, they agreed in the mind of a third and unprejudiced observer.

Allow me to illustrate: Both gentlemen have seen the queen making her way about the comb over a path made free by receding workers. One says that the workers get out of the way through respect for their queen; the other says, "Not so; they will do the same for a bee of their own rank." Each gentleman is right, and any one who wishes to investigate will see for himself. Workers make way for their queen sometimes, but not always; workers make way for workers on certain occasions. Why the path is cleared at one time and not at another I have not as yet decided. I suggest that it may depend entirely upon the task which the traveling queen or worker may be about. If not respect for queen, it may still be respect for the welfare of the colony—for bees are socialists.

It is not, however, my purpose to revive the controversy mentioned above. My purpose is to interest my fellow bee-keepers in the means of observing for themselves. Let one see for himself that bees give with folded tongue, but take with extended tongue; that field-bees rarely, if ever, put honey into cells, handing it over to younger bees instead; that bees rest, those of different ages having their own special way of taking rest; that young bees do this task, older ones that; that at one time the queen is surrounded by a crowd of solicitous attendants, at another is off in a corner alone with no sign of royalty; that honey is cured inside the bee, being frequently expelled and retaken again; that, in fact, there are a host of facts which will interest the observer for hours.

The making of an observatory hive is not difficult. A man handy with tools can make one in two hours. After

the bees are in, it should be set in the window, a hole through a board placed under the sash. Thus set, in a north window, it may stay summer and winter. Since there is small space for storing honey it will be necessary to feed frequently. This is best done by setting a tumbler of syrup inverted in a saucer on the window sill outside near the entrance.

I have at present two such hives in a north window. In one is one comb; in the other are ten little cross-combs built to the top-bar and to the glass walls of the hives. I can by means of these two hives get nearly all the doings of the colonies.

These colonies—at least the one with the single comb—are not a source of expense entirely. I have several beautifully straight worker-combs built there through the summer. It takes about ten days to get a full comb built, and two weeks more to replenish the working force before the comb is removed and an empty frame inserted. Possibly the history of such a colony during the past season will interest the readers of the American Bee Journal.

A year ago this observatory-hive colony went into winter quietude with about 3,000 bees and five pounds of honey. It wintered perfectly, taking only two or three flights. There were wrapped about it several thicknesses of paper and denim to shut out the light and to conserve heat. The room in which it was, and is, was occupied by an 8-year-old boy, who is not by any means always quiet. The coverings were often removed that the winter cluster might be observed. By the way, the bees were clustered in only the coldest weather; at other times scattered throughout the hive. During one or two zero spells I placed a small lamp beneath the hive till the weather moderated.

The bees outside had begun to breed some time before this little colony warmed up and the queen started to lay. But when work was once started it was pushed so well that a healthy, if not large, swarm came out May 11th. That swarm is to-day of full strength in a hive which is filled with comb. It, itself, swarmed in July, the swarm getting away to the woods. The old colony also swarmed in July, going to the woods. It thus follows that from that small colony three (possibly four) swarms came, and besides that I got three full combs built.

It is of course necessary to add that some 20 pounds of sugar were fed, off and on.

I paused a few minutes just now (it is December 18th, 9:25 in the evening, with a temperature outside of 20 degrees above freezing), to take a look at my two observatory hives. The bees were loosely clustered in spaces 8 or 10 inches across. Several bees were fanning their wings. Small pools of water were on the hive-bottoms. Two or three dead bees were in each hive. One queen was seen huddled in with the workers without any circle of attendants. Bees show no indication that confinement was injuring them as yet, though we have had a long spell of cold weather.

These hives are a source of much interest to my children, to their friends, and every one who sees them. I think that they pay for the trouble they cause, many times over. I strongly advise every one to set such a hive in a north window on the second floor. He will get well paid.

New London Co., Conn.



## The Making of the Queen-Bee.

From an address by Pastor Kline, delivered before the Wanderversammlung, in Strassburg, and Translated

By F. GREINER.

IN regard to the physiology of the worker and the queen bee I have concluded, after a close observation, that the female bee-larva, when but little developed, embraces within her little body two distinct possibilities or tendencies, viz: 1st, to develop either into a mother-bee, or 2d, into a nurse or worker bee. One is irresistibly forced to the conviction of its being an error, that the worker-bee is a dwarfed or undeveloped female bee, for in the worker as well as in the queen do we find different organs in the highest state of perfection. The worker is endowed with that wonderful system of glands, the pollen-baskets, the stronger tongue and jaws; the queen with those perfect organs of reproduction.

One and the same egg may produce a worker or it may produce a queen, according to the treatment it receives. When the reproductive organs begin to develop in the larva, the faculties and organs peculiar to the worker remain dormant, and vice versa. There is no possible way to pro-

duce a queen-bee with the strong worker tongue, and the fully developed pollen-baskets. When a five-day worker-larva is transferred to a royal cell, from which a royal larva has just been removed, the faculties peculiar to the worker are already in the beginning of their development, and this process is then stayed as quickly as possible, and the resulting insect has the appearance of a queen, but small, and with very small pollen-baskets and short tongue.

In reality we have *not* an animal which combines the qualities of worker and queen as we find it the case with other related insects, as wasps, etc. One would naturally think there would be a distinctly defined line between the two. But we find it not so. The manner in which the embryo larva is fed decides the direction in which the insect is to develop, and, when persistently continued, begins, conducts and completes the development.

When a three-day worker-larva is selected for a queen by the bees, the larva has not yet been fed undigested pollen, and one might expect that at this stage the worker faculties have not yet made a start even in their rudimentary beginnings, but it must be taken in consideration, that on the third day the worker-larva is not as lavishly fed as a queen-larva at this age; also, that before the cell in which the selected worker-larva lies can be changed over and built out into a queen-cell, the fourth day will probably have come. A miserable little queen will be the result. We occasionally come across queens which have characteristic marks of the worker plainly visible. In practice, we better steer clear of the idea that a three-day worker-larva is good enough for a queen.

What do we know about a larva developing into a worker in one case, into a queen in the other? It is believed that we must look for a certain admixture in the larval food, or that the latter is more plentifully administered, and thus produces the queen-bee. It appears that as soon as the larval food is changed the development changes with it, but it comes very gradually. I have taken five-day worker-larvae and transferred them to queen-cells. They should have been sealed after one-half day, but it was accomplished only in a full day, and yet the resulting queen could hardly be distinguished from a worker.

The older the larva selected for a queen at the time the change is made, the nearer the resulting queen will be like a worker.

Worker-larvae, when from 1 to 1½ days old, have hardly received other treatment than queen-larvae. Not till the end of the second day can we notice that the larval food is more scantily supplied to worker than to queen larva. Even when a three-day worker-larva is placed into a queen-cell full of royal food, its growth is slower than that of one that has been in a queen-cell from the beginning, and we can notice some distinguishing marks in the natural insects between those that were reared from one or two day larvae.

Merely to prove the theory, it might be of interest to know what a queen-larva would do if placed back into a worker-cell, but the latter is not roomy enough for it. From young larvae taken out of queen-cells I have reared five workers, none of which showed characteristic marks of the queen. The past season I made another experiment in the same line. I transferred thirty ½ to 1 day old worker-larvae to queen-cells, let them remain therein for two days, and finally returned them to worker-cells. I succeeded only with two. One of the larvae was immediately sealed after the second transfer and produced a perfect worker-bee; the other one was not sealed quite as quickly, and produced a queen, small and weak, showing a round head and curved hairs on the hind legs, and possessing a short tongue. This experiment shows that the queen-larva can be changed over into a worker.

This may have no practical value except to show by the results obtained, that whatever has been neglected in the earlier stage of bee-life cannot be made good later on by the very best treatment. The moral of the whole is this: "The earlier a larva receives royal treatment, and therefore the more lavishly she is fed, the better and more perfect will be the resulting queen."

### COMMENTS BY THE TRANSLATOR.

While I fully endorse the moral, I wish to say this: Our positive knowledge in this mysterious matter is restricted to the fact that the queen-larva is fed more lavishly, and slightly differently during the later period of her life. We do not know that this difference in the food and food-supply produces the results we see. I believe the real cause is not understood, and what we see are only the accompanying circumstances.

Ontario Co., N. Y.



## Convention Proceedings

### CHICAGO-NORTHWESTERN.

#### Report of the Chicago-Northwestern Bee-Keepers' Convention, Held in Chicago, Dec. 2 and 3, 1903.

The convention was called to order by Pres. George W. York, after which Pres. J. Q. Smith, of the Illinois State Bee-Keepers' Association, offered prayer.

Pres. York—I am sure we are all rejoiced this morning to find as many here as we have to begin with. I am sure we shall have a pleasant gathering in this nice, quiet room. The first on the program is introduction of bee-keepers from a distance. After this I wish you would speak to them as you meet them.

Dr. Miller—Is there any law against speaking to any others who are not introduced?

Pres. York—Yes. You must not speak to others at all!

At this point, Mr. Griggs, Mr. Hutchinson and Mr. Binger of Michigan, Mr. Coverdale and Mr. Benton of Iowa, Mr. Whitney and Miss Candler of Wisconsin, and Mr. Niver of New York, were introduced to the convention. After this the annual report of the Secretary-Treasurer was read. On motion, the financial report was referred to an auditing committee.

Blank paper slips having been distributed for questions, they were gathered up, and then discussed. The first subject was:

#### GRANULATION OF WELL-RIPENED HONEY.

"Will thoroughly-ripened honey granulate?"

Pres. York—Don't all speak at once, because the reporter couldn't take it all down!

Mr. Niver—I would like to ask a question. Is there any honey known that will not granulate?

Mr. Whitney—I asked that question. I have some honey that is uncapped, that I have had three years exposed to the air and it does not granulate. I have it here with me in my room. I think it is thoroughly ripened; it is just like wax, but there is no granulation. I took from my honey-house last spring a number of frames of honey that I had stored away for use among the bees in the spring, 30 or 40 of them, and not one of them that passed through zero weather, granulated. That prompted the question whether thoroughly-ripened honey will granulate. I think that that was thoroughly ripened.

Mr. Niver—To explain my question. I have had a good many calls for honey that will not granulate. I would be very glad to be able to get it. I was told that the Cuban honey did not granulate. I sent there for 500 pounds of it. I was wanting it to supply the patent medicine trade. Their trouble is to get honey that will not granulate, but I found that Cuban honey in our country will granulate as any other honey. If Mr. Whitney has any way to keep it from granulating, or bees that produce honey like that, he struck something good.

Mr. Abbott—The honey made from Mexican Spanish-needles doesn't granulate for me. I have had some for three years and it has never granulated any; but I have never gotten any Spanish-needle honey that did granulate.

Mr. Niver—How are you keeping it?

Mr. Abbott—It is just in the cans. I suppose it is no trade secret. I mix alfalfa with it, half and half, and I can keep honey in the stores the whole season through without granulating.

Pres. York—That's the kind of "adulterating" or mixing that the bee-keeper is permitted to do.

Mr. Abbott—I supposed so, or I wouldn't have told it publicly! I don't know that that is characteristic of all Spanish-needle honey, but I had noticed that, and it never granulated on my hands.

Dr. Miller—To answer that very fully there ought to be some modification, possibly, of the question. The question

might arise, What do you mean by thoroughly ripened? Will it granulate? Some would say, and I think very fairly, if it doesn't granulate within a year we say it doesn't granulate, yet it may granulate in two or three years. I want to suggest in the first place that there is no question but what there is honey that doesn't granulate. There are two or three samples right here. There are samples of honey that do not granulate, and I am quite a little of the opinion that almost any honey that you or I have may be made non-granulating, simply by ripening for a very long time. By keeping it warm enough, long enough. Those two things—warm enough, long enough. I saw some samples of comb honey in two places, one in Pennsylvania and one out in this State, that had been kept over the winter in a zero place, that were not granulated and the comb not cracked, and I don't know any reason why it might not have kept for years in that way; and all the secret was, the honey had been kept during the summer season up in one of those hot garrets where you can hardly breathe, and you wish you could get out. If you put your honey in one of these places and let it stay long enough, I am of the opinion it will not granulate, and it will be as Mr. Whitney says, it will be waxy. That will fill your trade, Mr. Niver. That's one of the things all of us need to learn, whether it be extracted or comb, to keep it in a warm place if you have any, or a place warm enough, long enough, and it will be non-granulating.

Mr. Wilcox—Won't you say in an open vessel?

Dr. Miller—You must remember my weakness. I am a comb-honey man. Extracted honey should be open enough to allow the air to penetrate.

Mr. Kanenburg—I had an experience with my own honey. I have an attic where I keep my honey for over winter, in an attic with just shingles on the roof where it is zero almost all of the time. I have had honey there for at least two years. I had a couple of boxes up there in the summer, and in the winter I let them stay right in the attic.

Dr. Miller—How near zero does it get in that attic in the summer?

Mr. Kanenburg—There is no zero there in the summer!

Mr. Wilcox—I have had quite a considerable experience in the line suggested by Dr. Miller, and I have found from repeated trials that it does not granulate if you will evaporate it. It is no longer a syrup, but it gums; but it is impracticable to do that for the market, therefore I cannot see much benefit, and some honey, if placed where it will absorb moisture from the air, will granulate. It isn't in the character of the honey, but simply the care that is taken of it.

Pres. York—What we want is something that will prevent it from granulating in grocery stores. The great difficulty I have found in selling honey in the city is to prevent the granulation in all kinds of temperature. Some of the groceries are warm and some are cold, some don't have fire all night in the winter. What we want is more than a little sample of it. If a honey-bottler had a carload or two he would get a good price for it. What we want is a large quantity that doesn't granulate.

Mr. Whitney—I stated that I took a number of frames from my honey-house that had passed through zero weather, and that didn't granulate. Honey in a shipping-case would keep, it seems to me, from granulating just as well as that comb honey from the honey-house during zero weather, providing it has been thoroughly ripened. I don't know why the grocer cannot keep tons of it unless as Mr. Wilcox says, the weather should be very damp. Of course, it would gather moisture, but in any ordinary dry weather I don't see why they couldn't keep tons of it through zero weather from granulating.

Mr. Hutchinson—It is possible we don't know yet what makes honey granulate. Mr. Boardman claims to have some secret process, at least he doesn't tell what it is, that prevents honey from granulating in the comb. We found that when years ago I was rearing queens, I would unite nuclei in the fall and lots of combs would have unsealed cells, and we would naturally think that that honey wasn't ripened, because it was not sealed. That would be in the very warm weather. In the winter those combs would hang there with the honey in the unsealed cells all winter long and not granulate. There may be some point in the granulation of honey we haven't gotten onto yet.



Mr. Josephson—Why do we want to teach the people to buy liquid honey? I was born in Sweden. In that country we consume a good deal of honey, but can never sell liquid honey. They want granulated, and considered liquid honey unfit to eat. They said it wasn't ripened. We are teaching the people to buy liquid honey here. Why don't we teach them to buy granulated honey, and we get out of all that work?

Pres. York—Perhaps we had better ship our honey to Sweden!

Mr. Starkey—I have had the same difficulty in my experience in handling honey. The fact is, that my trade wants liquid honey, and we find that out when we try to teach them to use something else. My experience is that honey that is once brought to the proper temperature that drives out the moisture, evaporates the water particles, if kept so that water does not again get into it, it will not granulate. But this gentleman's question would conflict with that. Small particles of honey, as in a cell exposed to the air, will not absorb moisture so that it will contain it long enough to cause granulation, but if you want to prevent your liquid honey from granulating after it is once ripened, then it must be kept sealed, or else this bulk of honey will absorb sufficient moisture to again bring about granulation. That is my experience. I believe we can answer the question, the reason his does not granulate, that is, exposed to the moisture, is that the smaller quantity will not contain it sufficiently but will evaporate exposed to the air as it is. But to prevent larger quantities it is necessary to keep it sealed. You can keep it indefinitely if you will bring it to the proper temperature and then seal it in glass.

Pres. York—What is the proper temperature?

Mr. Starkey—I would say from 150 to 160 degrees, if quickly. If a slower process, lower temperature will do it, but it takes longer time; as in Dr. Miller's suggestion, an attic is an ideal place if the honey is left there long enough to ripen thoroughly. Speaking again of the Spanish-needle. In 1879, when I began in Missouri, that was my main honey crop, and I sold hundreds of pounds in the market and in the stores, or anywhere they kept it, and I never knew it to granulate. I kept it in sealed jars. I was selling there two or three years, and I never knew any of the merchants to have any of it candy on their hands.

Mr. Kanenburg—About two or three years ago I had quite a little difficulty with honey granulating on my hands, and so I figured it out that if I got a box and put a glass over it and put it in there and peddled honey, it wouldn't granulate. It succeeded perfectly. Let me state that in the tight box with the glass over it the temperature was 150 degrees. I took the temperature two or three times. I kept that honey two or three years and it never granulated.

Dr. Miller—If you have your honey brought, as you may call it, to that waxy state before it ever granulates at all, then you can get along a good deal better than if you have honey that has granulated. Never allow it to granulate. You say that you can get a sample that will not granulate but a larger quantity is another thing. That's true; but if there's price enough you can get the larger amount. You could have a place arranged—it would take but very little difference in the price of a pound for making a building for it and put a large amount there. It isn't the bringing it to a certain temperature. One hundred degrees is better than 160, and if 160 degrees will do it in a short time the 100 degrees will in a long time. There is something in the long time that counts. We are taking quite a little time on this, but I believe it is important, and I believe there is only one way that we can do a little more than we do do in having it ripened and never allowing it to granulate. And, by the way, I may say to the president, no matter how bad the place that the grocers have, if it is not allowed to granulate, and is so treated that it has got into that waxy condition, that grocer will have to take some special pains to have it granulate if it has first been put up without granulating.

Mr. Abbott—I agree that it is very important, and we are just touching the danger-line. This waxy condition spoken of is very easily gotten by a little carelessness, and if you are not very careful you will spoil the flavor of the honey. There is a plan of ripening honey by a system of steampipes, and I bought some of this honey once. It never granulated, and I

don't know but in the start the honey was all right and pure, and of that waxy consistency that nobody wanted it. It wasn't exactly burned, but it was like chewing molasses candy that hadn't been made quite thick enough, and it wasn't desirable honey for the family trade. Every once in a while I have myself permitted a can to get just a little bit harder than it ought to be, and while it wouldn't be burned at all, it would get thick and waxy, and it had to go back to Mr. Somebody, where it was used for candy or printers' rollers. It is a very easy matter to spoil honey while endeavoring to keep it from granulating.

Mr. Whitney—Do you mean spoil by overheating or getting too thick?

Dr. Miller—I don't believe it.

Mr. Abbott—You can't with the sun.

Mr. Moore—There is a train of thought that went through my mind when I heard Mr. Abbott speaking, and I ask him if there is any suspicion of glucose in that.

Mr. Abbott—No, sir.

Dr. Miller—Had a great degree of heat been used in that?

Mr. Abbott—Yes, sir.

Dr. Miller—There's where the trouble is. It is the long and not the high degree of heat that we want. I doubt very much if it ever ought to go above 120.

Mr. Abbott—140 degrees.

Dr. Miller—That may be, but if you keep it at 100 long enough, I won't be much afraid of it.

Mr. Niver—Just one more word on this subject. Mr. Morton, of New York, had a special building for his comb honey; he believed in heating comb honey to ripen it, to make it thick so it would ship better, and he had this special building covered with steel that kept warm, and over night, if it was going to be cool at all, he would heat it. He kept his comb honey in there from four to six weeks. I attribute his success in holding the trade, and nobody could get it away from him, to ripening his comb honey after taking it off the hives. You cannot leave it for the bees to ripen it, for it will get all travel-stained. In New York we have to take it off just as quick as capped, or else it will get travel-stained. By taking it up in this building and keeping it there for a month or six weeks, we got honey we could ship safely. It was very thick, and waxy, and heavy.

Mr. Doby—Do we know the cause of granulation? I believe from my experience that it may be in the method of handling the honey, because I got some of the same quality that had been canned, and some would granulate and others would not, and I noticed in handling it that sometimes there are air-bubbles, and I had an idea that that's what caused the granulation. If we could prevent these air-bubbles, perhaps it would not granulate. That's only a question I am asking.

Pres. York—Do we know the cause of granulation of honey? Don't keep it a secret if you do; we want to know.

#### REGRANULATION OF RELIQUEFIED HONEY.

"Will honey that has once granulated and then been reliquefied, granulate quicker after that than the first time?"

Dr. Miller—Very much quicker.

Mr. Abbott—That's not my experience in 20 years.

Mr. Doby—Not mine, either.

Mr. Wilcox—If you reliquefy it most thoroughly. Keep it hot a long time, and after you think it is sufficiently melted so that there will be no particles in it, be sure it is all liquefied, and it will be all right.

Dr. Miller—I am very sure that Mr. Wilcox is right. I said yes, it will granulate very much quicker the second time, and I said to Mr. France, "There is one of the things that I am sure I know," and two or three said I was "off," and I found I didn't know after all. I am sure in a good many cases that I have tried it, it granulated very promptly after being liquefied, but it was simply liquefying and not ripening. Now, Mr. Wilcox is speaking about heating it and retaining it at that heat until every particle is dissolved. You simply heat it up enough to melt it, at least in a great many cases that I tried it, to melt quickly and it will granulate ever so much quicker.

Mr. Abbott—I think this is something I know something about because I have been handling it. We sell honey in glass-jars, and our grocery men don't want it when it is granulated. We take it away at once whenever we find any in the stores that's granulated. We re-liquefy by dry heat in the glass, without taking the labels off. There is no more heat than is necessary to liquefy used. It is heated until it is

absolutely clear, which we tell by holding up to the light, and when clear there is no more heat applied. After done, it is set in the stores and it will keep liquid four or five times as long as it did the first time when it was put in before granulating at all; and I believe if liquefied that way by dry heat it will keep longer. That has been my experience.

Dr. Miller—Mr. Abbott is bringing in another thing again. He is right, too. You heat honey up to 160, I don't care how quick you do it, get it to that and seal it up, and that will keep a long while without granulating. He has it sealed up and that counts in the case. He is right in that. We have the three different things. We have to sum them up.

Mr. Whitney—Do you loosen the cap of the jar?

Mr. Abbott—No, sir; we use corks. There is a label put on top and nothing is interfered with. It is just left as it is.

Mr. Baldrige—I have had a little experience in handling honey with the family trade. We ought to teach people to use granulated honey. I have been trying to teach my customers for the last three years to use granulated honey. I sell all my honey by sample. I carry granulated and liquid and I give them their choice, and in three years' time I think my customers have selected about four or five orders of granulated honey. I must have a queer class of customers to teach.

Pres. York—You are a poor teacher, perhaps!

Mr. Baldrige—They won't buy it if they have their choice.

Mr. Whitney—I have a few customers who use granulated honey, or rather extracted honey, I should say, and I have placed some of it in the stores at Lake Geneva, Wis.

Pres. York—Granulated extracted honey?

Mr. Whitney—Yes, sir. My best trade in extracted honey want the granulated. They say, "We don't want the liquid honey. Give us the granulated honey."

Pres. York—Are there a lot of Swedes up there? [Laughter.]

Mr. Whitney—Not at all. The very fashionable trade along the Lake, and I ship a good deal here to Chicago, granulated solid. They want it. I have sent it to Kansas City, St. Louis, the slightly granulated.

Pres. York—You haven't sent any to St. Jo, Missouri?

Mr. Whitney—I believe I ought to.

Mr. Niver—Mr. Baldrige and I are working along the same line. I am working here in Chicago putting in granulated honey. I am right in a Swedish neighborhood, and they tell me of that yellow Swedish honey. They say it is the finest honey in the world. It doesn't suit my taste. A good many prefer the granulated honey and I give them their choice.

Pres. York—Mr. Josephson has a sample here, and he asked me what kind it was. I couldn't tell except I called it granulated Spanish-needle honey. It is heather honey.

Mr. Niver—The Swedish people like it granulated, and use it like butter. I have quite a percentage of families that take it that way from choice.

Dr. Miller—While this is here, let me mention one point in which it differs from any honey we have in this country. I am not sure about Sweden. In some places the heather honey cannot be extracted.

Mr. Josephson—They can extract it, but the reason is that they are very backward in bee-keeping. It can be extracted if it is done about three or four weeks after being gathered, but if it stays in the cold it granulates right in the hive, and it stays granulated if kept until the next year. By this you can see whether they had honey the year before. It will never go back to the liquid form.

Dr. Miller—I understand the honey was always in that shape even before extracted. The only way to get it out is to press it.

Mr. Josephson—They smash up the combs, and put it in a strainer, then keep the honey three, four or five weeks in a room where it is warm.

#### FALL ITALIANIZING OF BEES.

"Who thinks the fall a good time to Italianize a colony of bees?"

Pres. York—How many think so? Raise hands. Eight.

Mr. Smith—My experience is that you usually have

young, vigorous bees for the spring work by Italianizing in the fall. That has been my experience. You have better results.

Mr. Hutchinson—Mr. Smith has just about told it. You have young, vigorous bees, and you will have more young bees to go into winter with. That queen is right in her prime, and that queen will build up quicker. You can get queens cheaper then; they are easier reared in the best of the season. I prefer to Italianize in the fall.

Mr. Wilcox—How late in the fall in this State?

Mr. Hutchinson—I wouldn't want to wait too late to rear the queen. I wouldn't care if it was in October, but I wouldn't want to rear a queen that late.

Mr. Baldrige—It is a good time to Italianize in the fall or any other time.

Mr. Whitney—I didn't raise my hand, as Pres. York didn't put the question on the other side, but my experience has not been very flattering. I would think it might be a good time to re-queen in the fall, provided you had a queenless colony and would be likely to lose them if you didn't re-queen. Late in the season I got a couple of valuable queens and I undertook to introduce them and they came pretty nearly setting my whole yard wild trying to rob each other, and they fought the colony of bees so frightfully that they actually destroyed it. The colony killed their queen, 2 or 3 days after introducing, as they were so disturbed. I had almost a similar experience trying another. It is the first experience I ever had introducing queens in the fall, and it seems to me that if they are introduced in the spring during flight-time, or after that, she would be during her prime and would have a good colony of bees to go into winter quarters with. It seems to me to be a much better plan. I have a clipping here which says the fall is the best time to introduce bees. I don't think so. That's what my experience taught me. Perhaps I don't do it right. My experience was very unfavorable.

Dr. Miller—I raised my hand because I think the fall is a good time. I doubt whether it is the best time. I doubt whether I ever introduced a queen in the fall, but if I had a queenless colony in the fall, I would think the fall was the best time to introduce the queen rather than to hold that colony queenless until spring. Whatever may be the disadvantages, there is this one advantage in introducing the queen in the fall, that you don't interfere at all with the honey crop as you may do by introducing a queen early in the season.

Mr. Abbott—The man that interferes with the honey crop in introducing a queen doesn't know how to introduce a queen.

Pres. York—Don't know when?

Mr. Abbott—Don't know how. Let me tell you how to introduce a queen so it won't interfere with any honey crop. The bee-papers have never found this out, and the people who write bee-books.

Dr. Miller—I thought I told them you said so!

Mr. Abbott—Put the queen on the hive and pay no attention to the queen that is in there. After she is in there let her lay all she can, and all she will, and when you get one in, pinch the other queen's head off and turn that loose and go on about your business. You can get five or six on top of the hive, as many as you want, and let all six out. There isn't any use of this fool nonsense, telling people to make their bees queenless. It is like hundreds of other things. It has been in bee-papers and agricultural papers until nearly everybody thinks it is absolutely the way to do this, and you can't do it any other way, and if a man once in a while tells a different way, they will ridicule him and go on doing the same thing. I would like to see Dr. Miller get up and say that this nonsense stop, and we quit making colonies queenless a minute. That is, if we want to get use of the queen. I should like to know what you mean. The best time for what, or for whom? Do you mean the best time for the fellow who has the queens to sell, or the best time for the colony of bees, or the best time for the man's pocketbook? If you mean the best time for the man who has them to sell, why then that's a good time. He wants to get rid of them and he would like to have some fellow think that that was the time to buy them. If you mean the best time for the colony of bees, then it would have to be a queenless colony; and if you mean the best time for the man who is investing the money,



I would say, don't do it. If you mean the best for success—now you may buy one for \$5.00 in the spring, you may buy one for \$2.00 or for \$1.00, but if you pay \$1.00 for a queen in the fall, and buy five queens for five colonies and you lose them, then you are out your \$5.00 which you might just as well have had in your own pocket as in the other man's pocket; but of course he didn't think so because he had queens to sell. A great deal of this is gotten up like the patent medicine man, all sorts of diseases, and you must think you have some of them. You can diagnose your own case, and his medicine cures it, and you buy his stuff.

Mr. Starkey—Let me tell you the best way to introduce a queen. I agree that Mr. Abbott's plan is all right, but I want to give you an improvement on it. [Laughter.] His way would be to open the hive and put the queen on top. Put the queen on the inside of the cover.

Mr. Abbott—Any place about the hive where the bees can get at her.

Mr. Starkey—I would only open the hive once. He will open it twice. I have to open the hive only once because I put the queen in the box that she shall remain in until the bees take her out by eating the honey or candy between. I introduce her in this manner. Now, of course, lots of men introduce queens that way, but that way will work. Now, in regard to the best time, we will have to say for what purpose. If a man wants to change a colony of bees, kill the old queen and introduce a better one, the fall of the year is a good time. Mr. York knows whether or not I have been buying them, because he sold them to me. I am not speaking for Mr. York, or any other man, but bees certainly do introduce nicely in the fall. As to robbing, they will rob whenever you examine them, if you happen to get robbers at them. If I have had any time to introduce after the harvest was on, I don't remember it. I have introduced several since. I believe the fall is the better; you can get the queens cheaper, and you can get them more promptly, because the bee-men have them on hand. That is the great difference over the spring-time, but you have to carry her over the winter. If you count on losing your bees, I say, don't introduce them. If you wait until spring when the queen is once laying, there is just as much chance of robbing, and I believe it is better to do it in the fall. Then another advantage, you have got no brood to lose when you open the hive to find your queen.

Mr. Abbott—Let me make that a little clearer. Now, what I mean, I won't open the hive but once. I sometimes have four or five queens. I sell queens, to illustrate. There are four or five that I want to get. I take these cages and put them on top of the frames under a cloth and turn them down so that the bees can get at them. May be I want to introduce one of these to that colony. After they have been on the hive 48 hours I take any one of the five or six I had on there. I first hunt out the old queen and kill her, and make it so the bees can get at the candy. I want them to do it in about an hour, and if I don't think they will do it in an hour, I make a hole so I think they can eat it in an hour, and I go on about my business, and I have never lost a queen by that process.

Mr. Whitney—I have no doubt it is a good way to introduce a queen, but we seem to digress from the subject. The question is not how to introduce a queen, but what is the best time. I read in Gleanings, "I think you can easily Italianize your bees in the fall; in fact, that is the best season of the whole year in which to do it." Now, I haven't listened to any argument here yet that has satisfied me that it is. It may be the experience of others, possibly, but, in our locality, we haven't had good success in introducing the queen in the fall. It was almost impossible to keep the bees from robbing the colony after you open it in a certain season. I thought I could manipulate a colony of bees and do almost anything I wanted to with them, but I came pretty nearly being beaten trying to introduce a queen in the fall, and I never had any trouble introducing a queen during the summer-time; I have never had any successful robbing during all my experience of seven or eight years, until this fall.

Dr. Miller—I want just to refer to that point. With Mr. Abbott's plan he saves 48 hours of the queen's laying because he puts the caged queen in there, and leaves her there with the old queen, and he saves that 48 hours' laying. Now, don't settle down right away to that. When he takes away the old queen and liberates that queen, that queen doesn't commence laying right away, and the interference is more than two full days, because if the queen does as they do with me, they will sometimes be several days before they begin to lay, and when they do they begin on a small scale,

and he saves that, too, and that makes his plan that much better; and after all there isn't so very much difference, and you cannot put in a new queen and have the laying go on without any loss. Set that down.

The convention then adjourned to meet at 1:30 p. m.

#### FIRST DAY—AFTERNOON SESSION.

After Pres. York called the meeting to order, the auditing committee made its report thus, which was duly approved, and the committee discharged:

Dr. Miller—Mr. President, your committee has the honor to report that we have examined the treasurer's books and found them correct.

Pres. York—I see on the program that the first thing after dinner is the President's Address. It is a good thing it didn't come before dinner. We probably all feel better about it now, and can stand it.

#### PRESIDENT'S ANNUAL ADDRESS.

Another year of bee-keeping experience has rolled around since last we met. To many of the bee-keepers of the central portion of our country it was a year of abundance of swarms and of honey. To some it brought the largest crop of honey they had ever had. Consequently to-day they wear a broad smile in addition to their good clothes.

Perhaps on account of the unusual crop, it seems the price of honey has weakened a little lately. But this ought not so to be. There is never enough honey produced to supply all who would eat it if they only knew its true value as a food. The fact is, a lot of people do not know that their health would be better—their life pleasanter and sweeter—if they would add to their regular daily "bill of fare" the honey that bee-keepers produce and offer for sale. Some day I hope to see honey advertised in the daily newspapers, along with Uneda Biscuit, breakfast foods, etc. When the people once realize what a healthful food honey is, there will be no further trouble about keeping up the price to where it ought to be.

#### THE ILLINOIS BEE-KEEPERS' LAW.

Since our last meeting, the committee then provided, in conjunction with the State Association, has secured an appropriation for bee-keeping in Illinois, amounting to \$2,000 for a period of two years. Already an inspector of apiaries, Mr. J. Q. Smith, and a deputy inspector, Mr. Herman F. Moore, have been appointed under the law. Another spring they can be called upon, and will do what they can to help put an end to bee-diseases in this State.

While this law applies only to Illinois, all bee-keepers are interested in it, regardless of what State they may live in; for every State added to the list of States having laws in the interest of bee-keeping makes it just so much easier for the States without such laws to secure them.

#### CO-OPERATION AMONG BEE-KEEPERS.

This is a subject that received considerable attention at the Los Angeles convention of the National last August. Something has been done about it in a few of the Western States, but it seems that not much effort has been made to get the bee-keepers of the Central and Eastern States together for their own benefit. Ours is a large country. If you doubt it, just make the trip to California even from Chicago (including a walk down and up the Grand Canyon), and I think you will agree that we have a big country. There is no question in my mind, but that bee-keepers should form commercial organizations, for the control of the marketing of their product. But *how* can it be done? It is very easy to say a thing *ought* to be so and so, but it is quite a different matter to *make* it so and so—or, in other words, to *do* it.

I haven't the least doubt that properly organized and conducted, honey exchanges would be most excellent things for the producers. It would also help the consumers to have confidence in honey, when they could be assured that all "Exchange" honey is absolutely pure, because bearing the "Exchange" label or brand. There are great possibilities along these lines, I feel assured, but I am not wise enough, or sufficiently experienced, to *lead* the way to success. However, I am interested enough to be willing to do what little I can to help stir up the subject until such time as it shall result



in something tangible and really of value to bee-keepers.

For nearly a half century bee-books, bee-papers, and bee-keepers' conventions, have been devoted to the teaching of bee-keeping and honey-production—to hives and apiarian paraphernalia and their manipulation. It seems to me that it is high time that bee-keepers begin to pay more attention to the other side of their calling—to the selling side—to the disposition of their honey product. The most of them know how to get the honey. The next thing is to turn it into more money than the most of them have been getting for it in recent years.

But I must not longer occupy the time of the convention. We are here to discuss matters of deep interest to all. You all have questions that you wish to ask, and all wish not only to have their own questions answered, but may want to answer the other fellow's questions. That is what we are here for. That we may have the best and most profitable meeting ever held by bee-keepers in this great, overgrown city, is my earnest wish; and that all may return to their homes feeling that it has indeed been good for them to be here, is my fondest hope at this time.

GEORGE W. YORK.

Mr. Abbott—Is the President's Address open to discussion? I don't want to discuss it. I want to offer a protest. I don't think it is fair for The American Bee Journal to advertise Uneeda Biscuit and not get paid for it. I move that be expunged.

Dr. Miller—How do you know that he isn't paid for it?

Mr. Abbott—I know from the look on his face.

Mr. Wilcox—As long as they buy our honey we will advertise their biscuit.

#### PREVENTING HONEY LEAKING FROM GLASS JARS.

"How do you keep honey from passing out from under the rubber of a sealed glass jar, creeping out as it were?"

Pres. York—I use glass-top jars, and the honey doesn't leak out from under the rubber ring under the glass.

Mr. Moore—My brother has put up honey for the retail grocery trade for six or seven years. He has always used one package, and that is the jelly glass holding, I believe, eight ounces of honey. It is put up like the historical Muth jar. It has flat sides to make it look larger, and is creased here and there, eight creases all the way around so it makes it look really fine, and looks is considerable. That trouble of the honey getting out of the jars is one that has always troubled the people who put honey in jelly glasses. I used to blackguard the other fellow by saying that they never could get good honey in a jelly glass. My brother has a steel stamp. It cuts out pieces of paper just the right size so that when he puts the tin cover down, it makes it air-tight—not air-tight, but honey-tight.

Mr. Reynolds—That must be something like they are using on the milk-bottles.

Mr. France—Have you tried that with a mason fruit-jar, putting a paper underneath?

Mr. Moore—No, sir.

Dr. Miller—The milk-dealers have a piece of heavy manilla paper cut with a stamp that makes a tight fit, and they put that down in the glass bottle, and it stays there. You can turn it upside down and it stays there.

Pres. York—You can do that with honey, with the ordinary jars that are used for honey—the screw-top jar with a rubber band.

Mr. Starkey—Should the honey-jar be so full as to have the manilla paper touch the honey?

Dr. Miller—I don't think it is absolutely necessary to touch it.

Mr. Reynolds—Yes, sir.

Mr. Smith—I have sold a good deal of honey in jars, but I have never had any leakage. I don't use rubbers. I use a jar like the cylinder preserve jar, which has a screw top, and on top of that it has a thick paper cut just to fit the lid, and when you screw that down it lets the air pass but the honey never leaks. You can turn it upside down. I have had the best results with that jar.

Pres. York—I have had the same jar, but the consumers couldn't get it open half the time. They would return it to the grocer because they couldn't open it.

Mr. Moore—This question of packages for honey is one that I have observed considerable. I will have to condemn the Mason jar first, last, and all the time. It is the cheapest,

most worthless jar that is made at the present day. My own choice is the Lightning jar with that pry-over beer-bottle snap. I believe you all know what it is.

Pres. York—No, we don't all know. [Laughter.]

Mr. Moore—It is the only jar that is worthy of attention. It has a lever fastening.

Mr. France—We are not all familiar with beer-bottles!

Mr. Moore—Honey that gets air, if it has a chance to do so will expand. If you fill a jar honestly full, it will come out, every time. The only objection to the Lightning jar, which is the only first-class jar on the market to-day, is its expense. Any jar that has a leverage fastening, or a strong steel bar, ought to fill the bill. The jar Mr. Smith speaks of, I am not familiar with. He ought to put the Association in communication with these people. If the thread of these jars is good—the Mason jar is not good enough, it is too short.

Mr. Smith—Mr. York says he can't unscrew it. If you will just pour a little hot water on the top, you won't have any trouble unscrewing it.

Pres. York—We almost gave away the last lot on that account.

Mr. Abbott—It seems to me nobody has touched the reason why the Mason jar leaks. We use some, also another jar, a round, glass one, and the glass lid fits far down on top on a rump, and then a wire around the top and the sloping hill on each side would come under, and that jar never leaks honey. There is no chance for the honey to get up over. The Mason jar with top screwed on, there is a space between the jar and the lid, and it never leaks until somebody turns it upside down. You can fill it full and it will sit there on the shelves for weeks and not leak; but as soon as somebody comes in and turns it up, there is that little honey up behind, it will always stick there. It is the same way about the milk. If you don't turn the jar, the Mason jar would never leak. Our jars do not.

Pres. York—I think there is a jar that won't leak.

Mr. Abbott—The two-pound Muth jar.

Mr. Moore—I spent weeks traveling through Indiana a year ago on this matter of selling honey, and I sold honey in these jars that Mr. York handled, and the Roots are now selling and using—the Tip-Top. For a 34-pound jar it is absolutely the best. I am not plugging for Mr. York nor for Mr. Root. It is absolutely a first-class jar to put honey in to-day. Mr. Meredith puts horseradish in them. In my travels I found these same jars used for everything—horseradish, jams, etc.—all over, and not a single grocer had a complaint to make of it.

Mr. Meredith—Is that the jar referred to there, having the spring top?

Pres. York—This is not the one. It is a different jar.

Mr. Meredith—The one I put horseradish in I find a very serviceable jar for both horseradish and honey. Horseradish is put up cold, but where honey is put up warm, I think often the contraction will form a vacuum that has a great tendency, so much so of course, that with the rim removed, it would be still tight.

Pres. York—The question is: How do you keep honey from passing out from under the rubber of a sealed glass jar, creeping out, as it were? I suppose the best answer is, Don't use that kind of a jar.

Mr. France—I agree there, but, in case you do, take heavy manilla paper and put on top first. I tried that to get rid of some of them. I use them because after the fruit-season the grocers have a lot that I can get at a discount. Put a heavy manilla paper on top of the Mason jar before putting on the cover.

Mr. Clarke—I don't see why honey cannot be put up in a Mason jar just the same as fruit can. Now, we know that if there is any leakage with fruit, the fruit is spoiled. Why is it that our best housekeepers use the Mason, or Ball, or some of these jars? Merely a question of air-leakage which probably gets to the honey. With fruit it is spoiled if there is any leakage, so I don't see why we couldn't put up honey just the same way as fruit.

Mr. France—I submit that Mr. Abbott hit the point there. If it is carefully carried and put right side up it will be all right, but our honey is tipped upside down. If honey were carefully handled it would be all right.

Mr. Clarke—I think entirely different from Mr. France. I know it is the law of the ladies that are successful with putting up fruit (I have done a good deal of it myself) that it is invariably turned upside down. The next day, if there is the slightest particle comes out, the bottle is put to one

side, but not one in 50 will leak, and there is no possible means of the hot fruit creeping.

Mr. Abbott—Mr. Clarke seems to ignore one fact. You create a vacuum and you get the weight of external air equal to tons. It is hot, and when it cools it leaves a vacuum as they bear down on that lid with force. When you put the honey in there is no air pressure at all.

Mr. Clarke—You are mistaken entirely about that. In screwing down it makes the vacuum on top of the liquid, you turn it upside down and the liquid goes to the bottom, therefore the pressure must be on the liquid underneath and therefore it would come out from underneath the stopper.

Mrs. Stow—I think Mr. Abbott is correct.

Mr. Abbott—The idea of the vacuum is correct. Turning the can upside down doesn't make any difference.

Dr. Miller—I would like to ask a practical question as to what Mr. France said—whether that piece of manilla paper put on the top is to go down inside of the jar or over the top of the glass?

Mr. France—The way I have done, it sets down in, and the edges turn up a little.

Dr. Miller—That's coming right back to the milk-bottle arrangement again.

Mr. Kanenburg—The Mason jars are not made like the milk-bottles, they are wider down below than on the top. How can you put a piece of paper in there to make it flush with the jar? You cannot get it tight enough then.

Mr. France—I said there was a portion of them that leaked. I condemn the package, but it is a great help to use the paper flange, and then when we let go, the expansion brings it back.

Mr. Whitney—If a piece of paper thick enough is put under the cover of the jar, and pressed down onto it, and that piece of paper fits on the top of the jar, and you screw your cap down, it won't leak. It won't leak even with the piece of paper right on top of the jar.

Mr. Meredith—I think that the expansion of honey, or any other liquid that is contained in a jar, if put up under ordinary temperature, will have a tendency to raise the top of the jar as a safety-valve might.

Mr. Wilcox—I would like to know if it is really admitted here that a Mason jar will leak honey with a cap put on between the jar and the top. I have not had as much experience as some, but I never had any leakage until I opened it the second time. When I screw it back I suck that out, and I have always taken it for granted that I took the honey out, and not that it leaked out if I left it sealed.

Mr. Johnson—I have had experience with Mason jars and others. I concluded that the Mason fruit-jar is my future package for extracted honey. I always use a new rubber and screw it down real tight, and they never leak. I suppose a Mason jar wouldn't be used for shipping very much anyway, but for a package to sell around home, I believe it is the best package that you can get, and you can get it cheap. Of course, the smaller the package the smaller the margin for selling them, because after you pay for the package you haven't much left. I sell my honey for a dollar a gallon, and ten cents for the package, or they can bring the package back and the money will be returned.

Pres. York—It seems to me a dollar a gallon is pretty cheap for retailing honey.

Mr. Chase—I asked that question, and I feel quite satisfied with what has been said on the matter, especially what Mr. Abbott said in regard to the pressure caused by heat. I put my honey up exclusively in Mason jars, and when placed upon the market I find considerable trouble. It seems to creep out over the top and spoils the labels. I didn't know but what it would be possible that something could be applied to keep it from creeping over. I think it is the space between the cover and the jar that allows the honey to come through.

Mr. Thompson—I agree with Mr. Wilcox on that subject, if put up rightly in the Mason jar it won't leak, and I have that confidence in the Mason jar that I would replace all packages that leak free of charge.

#### THE HONEY CROP OF 1903.

Pres. York—How many had an unusually good crop the past season? Raise your hands. Fifteen.

Pres. York—How many about an average crop? Raise your hands. Thirteen.

Pres. York—How many less than an average crop? Raise your hands. Five.

Mr. Hogge—There is a gentleman sitting next to me—a new man in the business. He says he started out with

two colonies, and had 500 pounds of honey and 8 colonies increase. He didn't hold up his hand.

Rev. McCain—This is my first season, so I cannot say whether it was comparatively good or not.

Mr. Whitney—Pres. York asked for an average crop. Now perhaps an average crop for some people would be better than an extra good crop for somebody else.

Pres. York—I had to ask the questions as they were written, you see.

Dr. Miller—I think that has nothing really to do with the case. The question is, What has been the season, no matter whether I am in a good or bad locality? Has it been unusually good, or bad, or has it been an average season? I think there has been quite a little light thrown on the subject by these answers. I think it is a remarkably good year everywhere. The fact is that one man will have a good crop and do such a lot of crowing over it that everybody thinks they have it. It is nothing more than an ordinary year, taking all the answers that are given—fifteen, thirteen and five. The fact comes out that there are quite a number here who have not had as good a year as usual.

Pres. York—I will ask Secretary Moore to bring forward Mr. Huber H. Root, who is to speak to us on Wax-Presses this afternoon. He is the youngest son of A. I. Root, whom we all know so well. Last year we had Mr. Root on the program and I promised him if we lived we would hear from him this year, as last year in some way his address was overlooked. I was very sorry indeed, and so offer this apology.

Dr. Miller—Before you give him another chance, and before we are through with this Root business. I want to say that there is another member of the family, Mr. Ernest Root, who was scheduled to be here, and I know that he expected and desired very much to be here, but he felt it his duty to attend the Ohio State meeting. They are trying to get a foul brood law there. He is very soon thereafter to attend a meeting in Washington, making it really impracticable for him to be here. As his name was publicly mentioned, I thought it best to make this explanation. I beg pardon for taking your time.

#### WAX-PRESSES AND WAX-RENDERING.

I will tell you how that was last year at the convention. Mr. York was so interested and delighted, and I was so interested that I forgot all about it until I got home and the first thing I remembered about it was his writing a letter to me which made me feel badly. I felt badly because he seemed to feel so badly. I hadn't felt badly, because I was so delighted with what I had heard.

As I look around here to-day, there is Mr. Hutchinson and Dr. Miller, and others that I am aching to hear from, that can speak from years of experience, and it occurred to me that this subject of wax was rather common-place, that it didn't amount to very much, but I believe it does amount to more than we would ordinarily think.

Down in Cuba there are a lot of men keeping bees for the wax only. They spill the honey—use it to wash with, I suppose—but here a good many don't care anything about the wax we get; we are all after the honey. Some of us go after the wax, but we don't get it all. I don't know that it would be very hard to give an estimate as to how much wax is wasted in a sun wax-extractor. There is so much left in the old combs that cannot be gotten out. I am very well aware of the fact that many don't use the sun extractor, but most people use the method that I will designate as the cold-pressure method. I mean they heat the old comb in some other place and then press it in a press, and they don't surround that mass of wax and old comb with any heat during the time of the pressing.

About a year ago I spent considerable time working on this very question. My brother was anxious to see, if he could, which was the best method to use, steam, hot water, or this cold-pressure method, and also to determine which was better, a lever or a screw, and I was very much interested in these experiments that I conducted myself at that time.

I don't intend to make this an advertisement for the German wax-press. In fact, I shall not speak of that. I will describe the method that I used, in which I got more wax by considerable extent than I did by pressing under a screw and applying no heat at the time of the pressure. I found that I couldn't get anywhere near as much wax by pressing on wax without the heat at the time, and it seemed to me that this was the reason: The wax as it is being pressed, oozes out. It oozes out and comes in contact with a little cocoon, little piece of the debris. It is chilled. I reason in



this way, that if there was some heat to carry that on out we could get so much more wax. That is a theory. Now I will try to show that this theory is a good theory.

I found that I could get—of course the amount of wax varies greatly that could be gotten from the comb. We had 8 or 10 barrels of old comb that had been accumulating around there for a year or so. With that old comb I found that with the hot water method I could get about 18 ounces of pure wax out of five pounds of the old comb. Using the same old comb and pressing without heat, that is, having heated the old comb in some other place, I found that I could get only about 10 to 12 ounces. That would seem to show that there was something lacking in that method. Well, I thought then that perhaps I didn't do it right some way or other, so I had some samples sent in from men who used that method of pressing out the old comb, having heated it some place else with a little water, perhaps. A man sent in a sample, and said that it was from cappings, and he defied me to find any wax in it. By the hot-water method I found that it contained 25 per cent of pure wax. It astonished me. I didn't expect to find anywhere near that much. I don't suppose that there would be that much, ordinarily, but I think that that experiment proves that not anywhere near all the wax is obtained by that method of pressing, without any heat at the time of pressing.

Now I will describe the hot-water method that I used. I had an ordinary oil-barrel, I think. I cut it off so that it made a tub about one foot high, and then nailed ribs down through that about  $\frac{3}{4}$  of an inch square. I made a frame of oak, 2x4, to surround that tub—one piece underneath, one piece on top, and two side-sticks, and to connect those we got heavy cleats. Then I had an ordinary carpenter's bench-vice. I was careful to take only such material as could be obtained at any hardware store in any town. This screw was three or four threads to the inch. I took the nut and placed it on the under side of the cross-stick, and there I had my wax-press.

The method I used was slow. I wrapped up about five pounds of the old comb in burlap; made a nice package of it that would just sit down in the bottom of the tub. Then I took a pail of boiling water and poured over it, and let it stand for perhaps a minute, and then applied the screw. I guess I left out the plunger under the screw. It was a hard wood piece sawed to fit the tub. After applying the screw on this amount of wax the wax immediately flowed on top. I could tell right away that I was getting a lot of wax. I turned the screw down with all my might, and then raised it, and with a stick pawed over the contents, and then applied the screw and found more wax, and the third time I found a little more wax, but the fourth time I didn't get enough to say so, so I applied the pressure about three times, and in this manner I obtained an average of 18 ounces; once I think it was as high as 24; again, down to 15, but it averaged about 18 ounces out of five pounds.

There was quite a little discussion at the time as to which would be better, a large 12-foot lever or this screw, and I tried both of them. It is a mathematical fact that there is more mechanical advantage with the pressure that can be exercised with one arm on the pressure of a screw than a man's weight on the foot of a lever. It is not only a mechanical fact, but a fact that I proved by experiment, but I don't know whether the pressure is what I want. I don't believe we want a lot of pressure. It was the pressing, and giving reasonable heat while pressing, and then raising up and pressing again, under the continued hot-water heat, and so I found that I could get just as good results with the lever as I could with the screw, but I had to employ a man to help me—a good heavy man to sit on that lever while I was at the other end, whereas with the screw I just used one arm. And then with the lever I had to have a good, strong post at the end, for the end of the lever, as a fulcrum. There is a tremendous pressure on the floor. Of course the screw and the strain is all on the frame. So I found that although I could get as much wax with the lever it was a lot more trouble. It took about the same length of time, and I had to have somebody to help me, and then continually during the work the lever would slip off and bother me. I don't believe a lever is as good as a screw. It is too much trouble.

Then there is this question: How are you going to get that wax off of the top of that hot water? You can't dip it off; stand there and dip it off a spoonful at a time, it would take you forever. Just simply pour it out into another pail somewhere, and let it stand in it for half an hour, and you can take the cake of wax right off. It takes four or five

pailfuls to keep going. It seems like a very mussy method, but it gets the wax. There are a good many who argue that they would rather get a little less wax and do the work quicker, but am I not right in saying that when a bee-keeper is rendering wax it is at a time when his time is not very valuable, and he can afford to take a little more time in order to get all that wax? I am sure that if any of you will try the two methods side by side, giving them a fair trial, you will be surprised at the amount of wax that can be gotten from the pressing with continued heat.

Now I would like to hear from some of the rest of you who can talk on subjects they have been working at for 40 years.

Mr. Wilcox—Mr. Root, would you melt that in another vessel and pour it into the wax-press and press it, or set the press on the stove and heat the water there? Which would be the better?

Mr. Root—It was a wooden tub. I should use the steam, and let the steam come right up in. I neglected to say that in my experiments with both steam and hot water it was the same—you get just as much wax one way as the other. The hot water took a little longer, but steam is so much nicer to work with, the wax is in nicer shape, and you don't have to pour it out and cool it, so that I prefer the steam, although steam could not very well be employed in a home-made wax-press.

Mr. Meredith—What about the amount of wax that we obtain from a solar extractor as compared to 18 ounces you got from five pounds?

Mr. Root—I really cannot answer that question, as to how much can be obtained from a given amount of wax in the solar, as to the hot-water method. I don't know. Of course we had two or three solar extractors running all the time, but I wasn't home long enough to work that out, but some time I intend to put five pounds of wax in the solar and give it a good trial, and see just how much wax we obtain; but I know I obtained lots of wax from the refuse of the solar, but of that I didn't keep any data, and I wouldn't even assume to state the amount.

Dr. Miller—In using the lever as compared with the screw, the lever exerts a continuous pressure and the screw you screw down and it stands right there, and it doesn't follow on down. Don't you think there is an advantage in that continuous pressure on the lever?

Mr. Root—I cannot see that. As I applied the screw I kept my hand turning right around, and just as soon as I got it down I turned it up and pawed up the contents. The screw was continuous pressure because I kept it going all the time. The lever went down a good deal quicker, but I could not see any advantage or difference whether it went down quickly or slowly.

Dr. Miller—In actual practice you wouldn't expect some one to be there all the time.

Mr. Root—I was at it to keep it turned down all the time until I put it up and pawed it over.

Dr. Miller—You can't work for me! [Laughter.]

Mr. Moore—Would it be a good idea to work a solar extractor and the steam wax-press together, in order to work over the material that comes from the solar?

Mr. Root—I think that would be a very good plan. The wax that comes from the solar is such a good quality—nice, clear and clean.

Mr. Moore—Would you think it more economical to do the entire work with the steam-press?

Mr. Root—That's a pretty big question. The solar wax-extractor is handy to have around to throw wax into.

Mr. Wilcox—With the solar wax-extractor you save nearly every ounce of honey.

Mr. Root—That's true.

Mr. Wilcox—I would use the solar, anyway.

Mr. Root—I think it is economical to use the solar in connection with the others, but I wouldn't depend on that entirely, because I don't think that it gets more than half the wax out.

Mr. Moore—Do you consider the German wax-press embodies all the best principles that are known to-day as carried out by your experiments?

Mr. Root—You put me in a rather embarrassing position.

Mr. Moore—You are simply an expert. Tell us what you think.

Mr. Root—I got just as good results with the steam-press and the hot-water press. I couldn't find any advantage in the actual result one over the other, but the hot water took a great deal more time than the other and was mussy.



Mr. Starkey—Did you find that you got all the wax by either process?

Mr. Root—No. I found that if I kept on I could continually get a very, very little, but it was so little that I didn't think it paid to fuss with it any more. I suppose that if there was some method used whereby that refuse (I call it cheese), could be scraped up as in a cider-press, I think you could get a little more wax out of it, but I don't think it is worth the trouble.

Mr. France—I have had considerable experience, and in fact the first day I used the German wax-press I rendered out 2,000 combs. You speak about turning the screw down, and then up, and then down again. Now, didn't you turn the screw down until the wax oozed out, and then you turned it up and pawed it over, and the oozing out of the wax permitted you to turn it down lower?

Mr. Root—I forgot to mention that. I turned the screw down only as the wax oozed out and let me turn it down. There is no use exerting a lot of strength. Turn it down gradually, and then you can move it and turn it down a little lower.

Dr. Miller—That's right. (I may hire you after all!) There must be time allowed for that wax to work out. It is not going to go on a jump. When you squeeze it down tight it must have time to work out. Here is a practical question: Suppose that I am at work at something, and I come and screw that down, and I have it standing on the stove. I don't want to stand there screwing all the time. I want to leave for five or ten minutes. I would like to have a way that there would be a constant pressure. I want to know if there is any law against having a spring there? If there were a heavy spring and you screwed it down, that spring is making a constant pressure there until you come back again. What would be the objection to that? Cost?

Mr. Root—Cost is one thing, but I don't believe you would get any more wax that way, and I think you would have to be around there just about as much. That is, that operation of pressing is short. It didn't take me over five minutes to get it pressed after I got it ready, and it was my experience that it is better to do one thing well than to try and do two things and do neither well. But perhaps it is a good plan to let it stand. Did you find any advantage in that, Mr. France?

Mr. France—No. I melted it in another package. I had the press on the stove and kept it hot, and as fast as two iron kettles would melt it, I pressed it. We ran four wagon-loads of combs through the press that day.

Mr. Root—You heated it in another receptacle and then put it in the wax-press?

Mr. France—Yes.

Mr. Root—It is a question how much it will pay you. If you are working for time you had better do that way, but if you are working for wax you had better have the steam generating while pressing.

Mr. Moore—Mr. Root, you are a civil engineer. It is an ordinary lever used to turn the screw. Now in the presence of that tremendous force, would you add to it at all with a spring?

Dr. Miller—You can't add to it.

Mr. Root—It would make a very complicated apparatus. It would be so complicated and bulky that it wouldn't pay. The pressure you would derive from the use of the spring would be so—

Mr. Moore—Infinitesimal, wouldn't it?

Mr. Root—Yes, sir.

Mr. Moore—It would be zero, wouldn't it?

Mr. Root—It would require a very strong spring.

Dr. Miller—I protest against that. The screw here brings it down to a certain point. Within a very short time there is no pressure there. Now, if you had a spring there—for instance, you have a spring that stands eight inches. Now let that stand there alone, and the sinking away of this mass will allow that to come down to ten inches. Of course there is a constant pressure. Don't understand me for a minute to say that that spring will add a quarter of a grain to the force. It can't possibly do it.

Mr. Root—You mean the spring will act after the screw has ceased to act?

Dr. Miller—That's the point. It is a matter of time.

Mr. Root—Why not turn the screw down a little more? Is your time so valuable?

Dr. Miller—Just so. When I hire you I won't mind so much!

Mr. Root—It takes so little time, the whole operation,

that I fail to see the advantage of the spring.

Mr. Whitney—I simply want to ask the Doctor if he wants to hire Mr. Root?

Dr. Miller—Yes, I am getting him trained!

Mr. Root—I would like to work for him.

Mr. Starkey—We will say that this block that rests on top of the wax has on top of that spring—one of the little, common, coil springs like under a wagon-bed. On top of that a plate that this screw comes to. If the screw strikes on that spring and forces it close with this pressure on the block, and goes down to where the wax is, instead of the pressure being lessened this spring continues to draw the pressure on this block-head to every part that has given way by the wax. I think that is a very valuable point. Instead of having to come back, this spring will carry the pressure on four or five times, and it will save valuable time that a man might be doing something else.

Dr. Miller—Mr. Root says it is so little time that it don't count.

Mr. Meredith—I should say a spring strong enough to give that pressure would be something a little larger than is used on the ordinary passenger coach.

Mr. Root—I understand that spring would act only when the screw wasn't acting. It is their opinion that the spring would do what you would do when you got back there.

Dr. Miller—Yes.

Mr. Root—You can't make me believe that the spring would be strong enough to do what you would do.

Mr. Starkey—We don't contend that it would do all, but it would continue to exercise the pressure. If we should happen back we might turn once, but you would turn four times.

Mr. Root—In the meantime, the whole operation takes seven or eight minutes.

Mr. Moore—The temptation to trip Dr. Miller up is too great.

Dr. Miller—I am down by now.

Mr. Moore—How many tons pressure is there in that screw pressing down the wax, as nearly as you can tell?

Mr. Root—Three or four.

Mr. Moore—You take the strongest spring you ever saw in a lumber-wagon, and put three or four tons on it, how much good will it do you? Mr. Meredith says a spring on a passenger coach.

Mr. Meredith—With a screw of four or five threads to an inch, it might be capable of exerting twenty tons.

Mr. Root—There is hardly any limit.

Dr. Miller—I don't think the point is worth holding to. A spring that will exert one pound of pressure will continue that pressure.

Mr. Root—I admit that.

Dr. Miller—And the strength of the spring doesn't count, but the whole thing is settled when he says it takes so little time to do it that the time cost isn't worth counting.

Mr. Root—Dr. Miller wouldn't have a good deal of time to get away to his other work before he would have to get back and put in another comb.

Mr. Stewart—Have you ever cut up timothy hay and put in with your cheese?

Mr. Root—No, I have not.

Dr. Miller—Have you done that?

Mr. Stewart—I have, and with very good results. It gets it separated.

Dr. Miller—I want to remind Mr. Root to read a periodical that is published in Medina, Ohio, in which that was mentioned as being done in Germany.

Mr. Root—You've got me there.

Pres. York—What's the name of the publication?

Dr. Miller—Scrapings—or something of that kind.

Mr. Root—I will read it.

Dr. Miller—I think it was your brother who asked whether a central affair, something in the middle of the cheese, allowing the wax to come out through, would help any. He tried that. I think.

Mr. Root—As I look at it, the wax below wouldn't go up to that, and when I get about the wax that I could get anyway, I don't see the advantage of it. You would have to have twice the amount of wax, and you cannot give it the amount of pressure it ought to have.

Dr. Miller—I tried it and I don't believe it helps.

Mr. Abbott—How many people are there here who get 100 pounds of wax every year? [Six.]

Mr. Abbott—Now you see you can get, what percentage more?

Mr. Root—I can't give the exact percentage more, but probably one-fourth.

Mr. Abbott—One-fourth of a pound would be 25 percent of wax. What does a German wax-extractor cost?

Mr. Root—\$14.

Mr. Abbott—25 pounds of wax at 20 cents a pound—what I am trying to get at is an opinion as to how much interest there is in this convention investing \$14 in a machine. Not all these theories will work, but they must ultimately work out in dollars and cents or else they are of no use. Just trying to see how much it would amount to, to this convention, provided they save what he says they can save. You have six people saving 25 pounds of wax in a year, and what I want to see is if it would pay you to invest \$14 in any kind of a machine.

Mr. Root—I don't think it would pay the small beekeeper to get a German wax-press. I don't know what my brother would say, but I believe that.

Pres. York—You can tell the truth here! [Laughter.]

Mr. Root—I believe my brother tries to tell the truth. I would try hot-water pressure.

Mr. Baldridge—Especially on cappings.

Mr. Root—You can get almost all the wax out of the cappings.

Mr. Baldridge—By setting in water it will all rise.

Mr. Root—This I am speaking of is only in reference to combs.

Mr. Abbott—May I tell a small bee-keeper how I do? It seems like a simple, small way. If you have 50 or 60 pounds of combs, pour warm water on it and let it soak thoroughly. My wife does that; I don't suppose I would bother with it. Then she has a large pan that fits inside of the oven. She puts in the wax that would weigh four or five pounds on top of a large sieve, and shuts the oven door and goes on about her business. In a little while the wax is all down in the water, and then she takes the sieve and puts more in, and if done that way it about all goes to wax. There isn't much left to throw away.

Mr. Root—Are they old combs or new?

Mr. Abbott—Any kind she wishes; just combs that are thrown in a barrel or box, sometimes sections. Directly she has a cake of wax that weighs eight or ten pounds; but she always soaks it in warm water and doesn't scald or do anything else with it.

Mr. Root—I have heard of that method before. You put the wax in the receptacle right in the oven.

Mr. Abbott—Yes, and she keeps it there and shuts up the oven, and in the morning the settlings are all out and she has a cake of pure, clear, yellow wax. She makes it in little cakes, and we sell it for 60 cents a pound.

Dr. Miller—I have been figuring that over, and it looks to me a little like this, after raising the question of whether I could afford it or not: The expense of the machine and time will cost me about two dollars a year, perhaps, allowing a good interest on it. Now, I must make that two dollars every year, and if I get 28 cents a pound for my wax, as I suppose I can, then I must get seven pounds of wax extra in the year to pay expenses, and if there is left any debris in the slumgum as much as one-fourth of the wax, then that seven pounds represents the total of my wax for the year at 28 cents a pound. So if I am getting 28 pounds of wax every year, then I can afford to have the German steam wax-press.

Pres. York—It is all right outside of Missouri!

Mr. Moore—I think Mr. Abbott had these small beekeepers scared. You know how much you expect from your bee-hives and wax-press. The cost is \$14. If you can make 20 per cent, \$2.08, that makes nine pounds of wax per year extra; then you can afford to have a German wax-press.

Dr. Miller—I called it 7 pounds.

Mr. Meredith—Cannot a German wax-press be made on a smaller scale, and price in proportion?

Mr. Root—The way the press is made, the money is in the workmanship more than in the material, and it would be just as hard to make a small one as a larger one. Another thing, the small machine wouldn't begin to be as effective.

Mr. Meredith—In what way?

Mr. Root—You could get about the same amount of wax, but the pressure has to be just about as great for the small machine as for the large, and, if you make a small machine, you have to make it as strong as a big machine, and the workmanship on it requires about as much brains and tools.

Mr. Abbott—What would a home-made machine cost?

Mr. Root—Not 60 cents.

Mr. Abbott—How much better would the German wax-press be? Would it get more wax?

Mr. Root—You wouldn't get any more wax, but you would get it so much quicker. As I said, I can get just about as much wax from the hot-water method as I can with the steam, but it is more mussy, and I have to work harder.

Mr. Abbott—My wife attends to the work!

Mr. Root—May be the bee-keepers are not all blessed with wives.

Mr. France—I was at a local bee-keepers' convention and this subject was brought up. They decided the wax-press was a good thing, but in a small way could they afford it? We, as members of our local association, can afford to own one, and that one press has gone the rounds, and each member has rendered all the wax he has, and at only a cost of 15 cents.

Dr. Miller—I want to say that of all the mean things Mr. France ever did to me, that was the worst. I was going to tell what they did in Germany. That's what they do there. The local societies own the machine. That's the way to bring the price down.

Mr. Root—Isn't it a fact that farmers will club together and get a binder or mower, and then they trade around?

Mr. Smith—They might do that in Ohio, but not in Illinois.

Mr. Root—I know of several who do.

Mr. Wilcox—Partnership ownership of necessary tools is not satisfactory.

Mr. Root—I won't dispute you about that.

Dr. Miller—That's a matter of locality!

Mr. Smith—I was born and raised in Ohio, and I remember we used to have an apple-butter kettle, and that's the way they boiled their apple butter. In the spring, when it came sugar-making time, we couldn't do that because the sugar had all to be made at the same time, and that spoiled the scheme—it wouldn't work. The Ohio farmers are not as large, and they can work reciprocity more. The great secret to get the wax out is to keep the wax from going into the old brood-comb cells or cocoons that are left by the young bee, and if you water-soak them in warm water—if the wax melts and runs into these cells you have to heat them to get it out. The wax is on the outside between the walls of these cells. Fill the comb thoroughly with warm water, and mash, and then put in the oven wet over a drip-pan, and you will get better results than with an ordinary press, and you can do it at any time.

Mr. Root—I don't see how that can be done in a wholesale way.

Mr. Smith—A man who has 30 or 40 hives—comb that isn't brood-comb—can extract that at any time; but when you come to an old brood-comb and lay it in the solar extractor dry, the cocoons fill, and the center of gravity will lie in that position so it can't get out.

Mr. Root—I have the advantage over the wax-press. I picked brood-comb many a time with a knife and have taken a very small handful of it and put it in a little cloth package in boiling water, and but very little wax could I find in there, and that's doing it in a wholesale way. It is all done in bulk. If a man had three or four barrels, I don't see how it would pay him to do it in an oven.

Mr. Starkey—About how many pounds of wax will ordinarily be taken from one filling of the wax-extractor, of mixed and broken combs? How much wax from one filling of the machine?

Mr. Root—Do you mean with the German wax-press?

Mr. Starkey—Yes, sir. How much will its filling once ordinarily do?

Dr. Miller—Allow me to preface this question with this: How much do you consider desirable to put in at one time?

Mr. Root—10 pounds.

Mr. Starkey—How much wax will you get out of that?

Mr. Root—It averages a little less than three pounds. I remember taking note of the fact that the average was not far from the exact proportion that was obtained from the hot-water press.

Mr. Starkey—I would like to relate a little experience that I had. I gathered together a great many old combs of all descriptions and broken, and some that had a great deal of cocoon. I had possibly a barrel full after it was well packed. I had one of these ordinary 10-gallon wash-boilers, and a two-burner gasoline stove. I filled the boiler with four inches of water in the bottom and set the gasoline stove to going with both burners. I put in this boiler almost two-thirds of this barrel, so as to allow me to stir it as the water



heated. On top of that I put a board that I cut round so as to fit inside loosely, and took an ordinary gunny-sack and wrapped it over that so it would be around the edges, and pushed that in snug. I boiled this about 1½ hours while I went on about my other work. I took an ordinary Langstroth frame, and from a point three or four feet from there I put a board about the same height. This frame would go inside the boiler, and the board rested on something else to prevent it from falling over sidewise, and to prevent it from breaking down, and whatever happened to be handy I threw on top of this board and this frame pressed the board down, that I had the gunny sack on, and when I came back it had gone down within six inches of the water, and the water had risen above the slumgum and board. I simply threw off the weight and poured it in. Simplicity bee-hive covers—they will hold about 14 pounds of wax; I poured out 24 pounds of wax from this rendering. I didn't spend more than ¾ of an hour. I got very little wax from the slumgum. That would be about as simple, and take less time to get the same amount of wax. I have used the German wax-press and I like it, and I think it is a very handy thing to have, but I can get along so easily the other way that I wouldn't think of buying one.

A Member—You simply used Mr. Abbott's sieve in another form.

Mr. Starkey—The weight is so light that the water boiling would stir up the cocoons that would hold the wax, and allow the wax to escape, which it would always do, to the top, the water being very heavy. The water is a very important element. It is heavier and it gets through the cloth.

Mr. Root—Your method would take a great deal of time compared to these other methods.

Mr. Starkey—In what way? I did nothing but fill the kettle and pour off. I would go and put in more as it cooked down, as it melts.

Mr. Root—Your actual work was little.

Mr. Starkey—Very little.

Mr. Root—That might be a very good way.

Mr. France—Did you clean that boiler or let the housewife do it?

Mr. Starkey—I cleaned it. There was some slum. My wife don't use this boiler. I never let her look at it, even. I scraped the slum out when it was dry. I had no trouble doing it. While I am speaking on this subject I want to say that I wouldn't even ask my wife to let me cook it in her kettle.

Mr. Niver—When Mr. Coggs shall is getting old combs and scrapings off of the floor and everywhere else that he gets them from, he puts them into gunny-sacks as fast as he gets them, and at some time when he has not too much to do he puts them in a kettle, sinks in several gunny sacks of this comb, and puts under a long lever with weights on it, and then he goes on out to the barn and presses a carload of hay; then comes back and takes out what wax there is, and commences over again. That is his method under the lever pressure in a caldron kettle with fire under it. That gives heat and pressure.

Mr. Root—Do you think he gets all the wax?

Mr. Niver—He hasn't time to worry much about that.

Mr. Root—That's the question. I don't think the wax can be gotten that way, so much of it, compared to the pressure. In my experiment I found that if I put a great deal under pressure I didn't get it all. The question is whether you want the wax or the time. If your time is valuable, I would by all means use some method as that, or the press when the wax is heated in some other place. If you want the wax, I still insist my method gets it.

Mr. Wilcox—Do they leave it in the kettle cold?

Mr. Niver—It rises to the top of the can. He will have several hundred pounds at a time at work.

Mr. Wilcox—You leave it there to cool. I think I have observed others who have tried it, and there is danger of a little iron-rust coloring the wax.

Mr. Thompson—Has anyone ever used additional screens in the solar extractor for turning after it had gone to the bottom once? I had an extra screen made for mine last summer and I think it was satisfactory. I couldn't find any wax in the refuse after that, where if allowed to remain in the bottom there would be wax on the edges and around the bottom.

Mr. Moore—How many have the German wax-press? [Four.]

Pres. York—Mr. Wheeler tell us about it; you raised your hand.

Mr. Wheeler—I think of nothing but what has been spoken of.

#### REPORT OF THE FOUL BROOD COMMITTEE.

Pres. York—We will have the report of the foul brood committee. I think they are here now, and perhaps ready to report.

Mr. Moore—A year ago Pres. York appointed three of us as a foul brood committee to co-operate with the committee from the Illinois State Association to get a law through the legislature. Your Secretary, Mr. Kanenburg, and Mr. Clarke, were appointed to act as such committee. I will simply say we did a lot of work, and we got the law. The two associations working together seemed to carry weight with the legislature, and it didn't seem to be a hard matter to get that law through. The law is now on the statute books, for an appropriation of \$2,000 for the Illinois State Bee-Keepers' Association. It had to be in the name of the State Association, first, because it is a State organization, and second, because it is incorporated. The proceedings were very interesting, and if there was lots of time we might tell you about it in detail. There was a lot of work done. Letters and circulars were sent out to every bee-keeper we knew of, to every member of the legislature, especially, members of the committees to which our bill was presented, and representatives of the House and the Senate, telling them the strongest things we could think of on the subject. We told them we had just as good a right to have a foul brood law as we had to have a law against smallpox being carried around in the public schools and along the street. The result is we have the law. And there don't seem to be any reason why the Association should not have this money appropriation every year as long as they choose to ask for it.

Mr. Starkey—I would like to know if any arrangements or provisions have been made for the members of the bee-keepers' association to get copies of that law or enactment?

Pres. York—It was published in the American Bee Journal.

Mr. Smith—I will just state that a great many bee-keepers think that there is a compulsory clause, and there is not. It simply says: "To be used by the Association for the extermination of foul brood." Of course, if a man has foul brood in his apiary we can go there and tell him so, but we can't make him clean it up unless he chooses so to do. What we would like when the next legislature meets is to have a compulsory clause, so we could do something with the people who are notified that their bees have foul brood and will not clean it up. In my last fall's experience in going over the State, I found people paying no attention to it at all. Some people's bees had it and they were cleaning up their bees but their neighbors across the lots had it and wouldn't do anything. Now there is where the trouble comes in, and at the next legislature we propose to have an act submitted, and we would like the co-operation of this Association to get that passed, because that will be the only way by which we can get relief in the proper way.

Mr. Moore—Have any bee-keepers having diseased bees refused to let you examine them?

Mr. Smith—No, sir; but some might. We would like soon to have a law so that the foul brood inspector can go there and demand the right to inspect all their bees. I guess Mr. France knows something about that.

Mr. Moore—Did you ever suggest to them that there was a way that they could be got at; that they were harboring a disease?

Mr. Smith—They want to know the law right away. I haven't any law. The first question is, Have you a law? If so, I want to see it.

Dr. Miller—I am exceedingly thankful for the appropriation, but the truth is we haven't any foul brood law. There is an appropriation for the State Association, but we haven't anything in the shape of a foul brood law in the State, and we need one. I would like to ask Mr. France how much he thinks he would be helped in the matter; how much difference would it make in your work in the State whether you go with the law back of you, or simply with enough money back of you to bear expenses?

Mr. France—I would feel like resigning my work. I go to A: his bees have foul brood. He is glad to take care of it. B, C and D have a few bees and they don't care, and they are not going to take care of it. Now in Mr. Smith's position he has no authority, and it is pretty bad. It doesn't make any difference whether one colony or 100 colonies have



the disease, it must be treated or it is a violation of the law, and the man allows you to inspect or treat his bees.

Mr. Pottenger—There is a man keeping bees near Kanakee, who says he would like to see someone come into his yard. He would not permit anyone to come in and see it at all.

Mr. Whitney—If you had the Wisconsin law he would.

Mr. France—The first summer out I had to meet men at the gate with a shotgun or a bulldog, who demanded me to—

A Member—The official has the authority of a sheriff, and if they undertake to bother you, give them over to the authorities, and you treat the disease. If a man interferes, put him under cover.

Mr. Smith—That's what we want.

Mr. France—I would suggest that in order to get that law it will be necessary to show how much benefit your Association, through your inspector, has had through the appropriation, and how much more has gone undone because of the need of this law.

Mr. Smith—We will have a report of that kind.

Pres. York—The legislature meets a year from this winter.

Mr. Kanenburg—Why didn't they put in that clause in the first place? When we put in our bill we were a little later than the men of the Illinois State Bee-Keepers' Association, so of course our bill was a little too late. If that clause had been in, I suppose we would have gotten the law just the same. I know Representative Austin would have gotten that just as well as the law we did get.

Mr. Smith—We interviewed the members of the Appropriation Committee and they refused to put anything in a compulsory way; said that it would not pass, and therefore we put it in in this way. We thought this would be an entering wedge.

Pres. York—It was either that or nothing.

Mr. Kanenburg—This law was put out of the tracks altogether, and if it hadn't been for Mr. Austin we wouldn't have had it.

Dr. Miller—As Mr. Smith has placed before us, they would do nothing about a law if you insisted on putting this compulsory clause in it. They said we will give you the appropriation. The question was, Shall we take the appropriation and get a little done by it? and I believe they were very wise in taking it. We haven't any foul brood law. Let's get one. He can tell them at the next legislature, Here, you gave us so much, and we can do so much good with that, but we need a law if we are going to do any good.

Mr. Smith—The idea was this: By getting this appropriation—of course, it was late last summer when we got it into our hands, and too late to do anything to amount to much, and we thought this winter we could have pamphlets printed on this subject and distributed all over the State to every bee-keeper, and published in the farm journals, and especially in the bee-papers, and in that way we thought we could reach the people so that the bee-keepers would assist us in having a law passed that would make it a penalty, and I think we can do that. We expect to have quite a lot of material printed this winter, and mailed out to all the bee-keepers we know.

Mr. Wheeler—One question in regard to how many people were helped by this law. How many are there here who were helped by the foul brood inspectors of Wisconsin and Michigan? I would like to know who they are, and what report they give. A great deal depends upon what they report, to know what we want. We have listened to the inspectors, now let's listen to the people who have been helped.

Mr. Wilcox—There isn't a man, woman or child here, or elsewhere, but what has been helped directly or indirectly, for everything that helps to promote the bee-keeping industry, helps neighboring States. It helps all who buy honey, bees or supplies; it helps all who have any dealings whatever with bee-keepers, and a foul brood law, in fact any law, that helps the Wisconsin bee-keeper helps you. You are helped by our law, and it is morally certain that all the good we do is shared, indirectly at least, by all.

Mr. Wheeler—Has Mr. Wilcox been helped, or any of his neighbors that he knows, so that the disease has been stamped out?

Mr. Wilcox—If you had the smallpox here in our community the Board of Health would exterminate it.

Mr. Wheeler—We are not talking about smallpox; I am talking about foul brood.

Mr. Wilcox—It is the same kind; it is an infectious dis-

ease, and it spreads rapidly and far distant. Our Wisconsin law is copied after the State Veterinary law, and is carried for contagious diseases among live stock with the same powers and duties, and all are benefited because we are benefited.

Mr. Meredith—I will say this in regard to those being benefited. Last year I brought a comb in here, not knowing what the condition of it was, and I found it foul brood, and by following up the treatment as suggested by the Wisconsin inspector I have cleaned up my yard of what little I had. So I have been benefited by knowing that my bees had foul brood, and by using the suggestions about taking care of it.

Mr. Abbott—How long has Wisconsin had a foul-brood law?

Mr. France—Our law now has been running seven years.

Mr. Abbott—It ought to show results.

Mr. France—I don't like to be personal, but going over into Mr. Wilcox's district, I found apiary after apiary that they said they hadn't gotten any honey from for years, and they called it bad luck and a poor season. Another season I came back there and they said they had the biggest crop of honey they had had for years. Now, as to the amount of seven years' work, I have cured over 11,000 cases of it, and I don't know of but three places where they had it that they have it to-day. What would you do if you had 11,000 cases of some very contagious disease?

Mr. Abbott—I want the real gist of it. You may have cured 11,000 cases, but if the 11,000 cases are cured, are there 22,000 cases left? Here's the point: A noted stutter doctor had a great many patients coming to him, and he had a world-wide reputation, and people were all hunting him up. There was a man going along the street who wanted to be treated. He met a man and asked him about this doctor. He said, "Well, I—I—have known him; he—he—he—c—c—cured m—me." Now, then, that's the question. Have you done it that way, or is it being wiped out of these places? I am inclined to think that it is being wiped out. Can you wipe it out?

Mr. France—We will never wipe it out until all the States have the law. Illinois has imported it. Over four or five times I stopped it coming into my State. To-day I know of it in only five counties, and when I started it was in 50.

Mr. Wheeler—That's Mr. France. Now, the question is, if after Mr. France goes into an apiary and treats it, is that apiary forever cured of it, or apparently for one year or a little time? He may lay it to some other State, or someone else in the neighborhood, but I have my doubts about it, and I would like to know. Stick to the same question that I put first. Are there people here who, after six or seven years, have had foul brood permanently cured by Mr. France or any other State inspector?

Mr. Horstmann—I have cured foul brood. I know that they can do it as well as I can, and people are bound to be benefited. I had foul brood just about as bad in my apiary as I ever heard of, or knew of, and I don't believe there was a bit last year, and I had any amount of it year before last. We want a foul brood law in this State so that the inspector will have a right to go in and examine bees and treat them. I would never hunt up an inspector to come and treat my bees. I would dig right in and treat them myself. The people who will not treat their bees are the ones we want to get after, and if there was a foul brood law we could force them to clean up. I am rid of foul brood now, but there isn't any telling how long I will be. The bees may get foul brood from some other apiary. I cleaned out an apiary to get it out of the neighborhood. Will it return? I may have had a cold last year and have another this year. It is not the same cold. You may cure your foul brood this year and it will be new next year. That's the way I look at it.

Mr. Wheeler—I call the gentleman to order. We are not talking about colds nor about smallpox. We are talking about foul brood.

Mr. Horstmann—We must give illustrations to make people understand what we say.

Dr. Miller—Without using any illustration, let me say to you how I would feel supposing I knew of a case of foul brood in the apiary of a neighbor. I would send word to Mr. Smith that I wanted him to come there, and he comes. I don't know enough about it to decide whether it is foul brood or not, and I will go with him over to the neighbor's, and the neighbor says, "You go to —, France!" and Mr. Smith and I will have no chance to go in there, and if there

was a law back of him we could go in there, at least Mr. Smith could, and I suppose I could go with him if he appointed me to assist him, and we could do what can be done toward eradicating that disease there. Now I am helpless. Anyone who has foul brood can come and set it down within half a mile of my place and I can't help myself, and it isn't germane to the question whether I can tell a man who was helped this much and that much, and it is germane to use something analogous. The fact is that smallpox has never been wiped out. It is in existence now in the same form that it was when I was a boy, and in spite of all the laws and endeavors it continues, but you don't see people marked with smallpox to-day as when I was a boy, because it is suppressed. Smallpox isn't foul brood. Foul brood can be suppressed to an extent. Suppose now it is entirely wiped out. Even then I am safer if I can have done what can be done with a diseased apiary close to me. There is no sort of a question but what a great deal can be done to overcome it. Some of the New England States have foul brood laws; also in Colorado, Michigan, etc. They have them in Canada. They have had them for years. They are tried there. In Canada, Mr. McEvoy did a grand work. If there had been no foul brood inspector, wouldn't it have gone on and wiped out all the bees? They have their bees there in spite of the disease. Now if there is a law that obliges a man to do what he can to crush out the disease, that will be a help to me, no matter if he is clear over on the Wisconsin line. Mr. France is helping me because I am only 15 miles from Wisconsin, and any day it may come—within two years at least—to my place. There is no question but what we need the foul brood law, and the States that do have it don't go back on it. They have it, and don't say it isn't of any use, and we won't have it. We need the law, and we need to do what we can. I venture to say that there is more foul brood in Wisconsin than is desirable, notwithstanding the good work Mr. France is doing, and he will be old and gray-headed, but it would be a great deal worse if they didn't have a foul brood inspector there. We simply have that appropriation, and Mr. Smith has done—I don't say how much, but he cannot do what he ought to do until we get the law. I want it for my own personal security.

Mr. Moore—It seems to me that perhaps this discussion has gone on about long enough, but if you will pardon me, I will give an illustration. How many times, Mr. Smith, have you tried to get a law since 1894?

Mr. Smith—Every legislature.

Mr. Moore—Last fall there was ground broken to get a law for bee-keepers. Mr. Smith and the State Association had been doing what they could, and we didn't get awakened up until several months later. I think it was in January that we got to talking about it. We decided that the Chicago-Northwestern Association would join hands with the Illinois State Association and see if we couldn't get a foul brood law, so through the American Bee Journal's help and other personal help we went for the bee-keepers. We said, "Subscribe your money, and we will do some work," and with the Illinois State Association we went and got a law. We did everything we could think of. Dr. Miller gave us valuable suggestions which we carried into effect, and we carried into effect every suggestion that our friends gave us. We told them, "This won't do, but it is one of the things we must do to get a law." A day was appointed, and our Secretary had the honor of going to Springfield on the day the bill went in, and the committee on appropriations for the House and for the Senate both had their hearings the same day, and very kindly listened to the committees addressing them. Our Secretary went to the State House and got a copy of the bill as introduced. It was our intention to follow the Wisconsin law as we supposed should be done. The members of the Illinois State Association said they consulted with their friends close to the legislature, and that they failed every time so far since 1894, and were told that if they put a bill in with that clause in it they would fail, and consequently introduced a law that would pass. When our committee got there we found it had already been introduced by a member in the House and a member in the Senate. I personally consulted with Mr. Austin, a friend of Mr. Kanenburg's. I told him it was a personal matter in which I was interested, and then asked him as a friend to push it. I talked to him at great length. He talked to me about this drastic clause. I said, "Mr. Austin, we are going to have that in the law."

When I got to Springfield I found the bill was already introduced. We could go on and introduce another bill if

we chose, or Mr. Austin would introduce it for us, but our friends said if you introduce another law the chances are we would kill both of them, so we decided it was best to get what we could this time and hope for better things in the future. Mr. Austin said, "What is the matter with it? There is no clause in there for compulsory inspection." I explained to him that they had already started their bill through the grind, but I said, "Mr. Austin, I tell you, if it comes to me to enforce the law, I will put in motion the machinery we have aside from the Wisconsin law to compel any given party to submit to proper things. I said there is a general nuisance law under which any person can be prosecuted." I would first write to such a party, "We have information that you have foul brood in your apiary, and we recommend you to submit to the treatment." If he doesn't answer, I would say, "Now, sir, a certain day we shall prosecute you before this court for maintaining a nuisance." I tell you, ladies and gentlemen, I believe in a majority of cases moral suasion will work, but this authority of prosecution, that is my thought, and as I explained it to Mr. Austin, and if any case of that sort comes up to me I will make these people, and if I am backed by the Association, I will carry it into court and do something under the nuisance act. There is a nuisance act, and it will cover every possible case of a nuisance.

We have been blamed for not getting what people thought we ought to have gotten, and I spent weeks on this question, and felt sensitive that we were blamed for getting half a loaf when we ought to have gotten a whole loaf. We would have gotten nothing. That is the situation, and Mr. France has said if we make a showing before the next legislature that we have done well, as good and faithful servants, they will give us any law we ask them. They fired questions at us. Why didn't you get your law last year? It is a point in our favor with the next legislature that we got some kind of a law at the hands of the last legislature.

Mr. Wheeler—You may think I am overbearing. I am interested in this question, and I would like to hear from the people who have been helped by the state inspector. I don't care to hear from the people who have wax or foundation to sell, and people who are inspectors, but from the men themselves who are interested and have bees.

Mr. Smith—I will just state that the men who are here are practical bee-keepers, and they are their own foul brood inspectors. A man that will allow foul brood to come and stay in his apiary is no practical bee-keeper, and I don't believe a man of that kind would belong to an organization. Outside is where the trouble comes. I was within 17 miles of Dr. Miller's, I was near Crystal Lake, as far as Mattoon, and south to East St. Louis, and Danville, and when I was out 20 days I had visited 42 apiaries, and there were over 300 colonies that I treated. You see, I only had 20 days to do it in. I would have been out longer only sickness at home brought me back. I was due up at Kankakee, but the season got so late we couldn't do much. We all have to work together, and if there is any bee-keeper who knows of a case of foul brood it is his duty to correspond with the inspector and have it treated. We have men in this State that are selling bees and queens that have foul brood. I want to get after those fellows. They are the ones that are scattering it broadcast. I lost 82 colonies of bees by buying queens. Two of my neighbors near by lost 102, and another lost 42. It wiped their apiaries clear out. They didn't know what was the matter until they were all gone. They brought their queens from the same party. I understand this party has been buying bees promiscuously and shipping them all over the State. He doesn't care anything about it. I understood parties in Cook county bought bees of him, and they were all diseased, and their apiaries had never had it before. If we can't work as a unit as bee-keepers, we can't do any good. We want to all stand together. If you know a case in your county, it is your duty to report it.

Dr. Miller—I didn't know there was one.

Mr. Smith—I don't believe all foul brood will ever be exterminated any more than smallpox.

Dr. Miller—I would like to have a minute and a half of private conversation with Mr. Wheeler. If you had no foul brood in your own apiary, and there was a case that you knew of within a half-mile of you, a man who had one colony, and that colony was rotten with foul brood and you knew it, would you, or wouldn't you, want to oblige that man to burn up that colony or treat it in some way? Wouldn't you want the chance to say that he *must* do that? You know you would. I want to tell you that if it comes to that, you



won't stop to ask how many have been helped by it. You would say, I want that law right here now to help me.

Mr. Wheeler—I couldn't answer that. It would take too long. I rather think I would treat that with moderation.

Dr. Miller—You would want to force them.

Mr. Wheeler—You are not the man I took you for. I have other reasons.

Mr. Abbott—This is a matter in which I have been trying to get certain facts before the public. I understand there is a reporter taking this, so we want to be careful what we say. There is no use of Dr. Miller talking to Mr. Wheeler, and Mr. Wheeler talking to him. It is a fact that no man can get around, that legislative committees are influenced by facts, and not influenced solely by the facts that are presented by the official. If the official, when he gets there and makes his statement, cannot have it backed up by the individuals who have been helped by these actions, that report of that official will not be worth very much before the legislative committee down in Missouri. What I was after was to get such facts from the people who had been helped as would make a tremendous leverage under the legislature of Missouri so as, if possible, to boost them up and give us a law. What we want is combined influence. Co-operation. How? If these bee-keepers have been benefited in Illinois, and they have been benefited in Wisconsin, and they have been benefited somewhat in Michigan, is it not possible to use this as an accumulative force to use in other States? That is what Mr. Wheeler is trying to get at. I expect to be before the Missouri legislature to talk on this subject, and I want something to talk about. I don't want to have to say the commissioners report so and so, but I want to be able to say that the people who have the bees say so and so, and we are interested.

Pres. York—There are hardly enough here who have been helped. In Illinois we haven't had the inspector long enough. There are only a few bee-keepers here from Wisconsin, and only two or three from Michigan.

Mr. Johnson—It seems to me as if the question to be discussed is as to whether it would be important for us to have this compulsory clause in this law. The law we have is good for Illinois. If I get foul brood among my bees I can send for Mr. Smith, and he would come and rid me of it, but if my neighbors have foul brood, which they very likely will have if my bees have it, Mr. Smith can't go over and do anything until they are willing to have him, and if they are willing he can do so, and in that way if the neighbors are willing the law is good and it is all right just as it is. It would make it more complete if we had this clause in it, and that is just what we want. What encouragement can this committee, Mr. Smith and others, give us that we can get this in the next legislature?

Mr. Starkey—I would like to address myself straight to the question if it were possible. The question is one supposed to be answered by the people who have had benefits. The very fact that this law has been in force only a very short time, and that possibly with the exception of three or four people in this house, and also the things that have been done could not apply to the question of the gentleman because none of the work that has been done has been done more than three months, and if that is true, no man could get up and say that two years ago I had some things done and it is well done. I believe the question is not appropriate under the conditions of this convention.

Mr. Reynolds—Mr. Wheeler was talking about the law in Wisconsin.

Mr. Starkey—The Wisconsin people are not at this convention. My statement is still true. It cannot be answered in this convention.

Mr. France—I may be considered as a man having an ax to grind. The bee-keepers of the United States—why, I don't understand, but the conditions are so. Say I am inspector of Illinois, and I should go to one of your apiaries and find the disease there. It would be treated. If in my annual report I would say I have been to Mr. York's apiary, he having supplies to sell or queen-bees to sell, or he even buying and selling, the making public of the fact of foul brood the bee-keepers would ignore him and they wouldn't touch him, or put their hands on him. Experience has proven that we must not publish the names, but if you want a list of those whose bees have had foul brood in Wisconsin, and have not got it now, I can give you pages of them.

Mr. Coverdale—Nineteen years ago foul brood was in-

troduced right close to me. It happened that I was right on the ground and saw it before it got into more than three colonies. These colonies were hunted up and treated, and exterminated, and banished on the spot. If I hadn't seen these we wouldn't have been able to do that. There isn't a case of foul brood among my colonies now. I think a great harm was headed right off. I believe in extermination of foul brood. I thought I did a grand thing.

Mr. Wheeler—I doubt if those bees had foul brood at all.

Mr. Coverdale—I am familiar with it. I can tell or smell it, or if any other bee-disease, I can tell it.

Pres. York—I think so.

Mr. Smith—If there are any in this audience that haven't seen foul brood, or don't know anything about it, I have a full comb of it in the other room. They can go in there and acquaint themselves with the condition. If you get a smell once, you will never forget it.

Mr. Duff—We bee-keepers in Cook County ought to know the names of the queen-breeders who sent out diseased queens. It is only just. An ounce of prevention is better than a pound of cure.

Mr. Smith—I will just state that in this case I judged from the results. They were persons whose bees never had foul brood until they got queens from that dealer.

Mr. Duff—I should think that would be enough.

Mr. Smith—That man has an apiary at his home place, but I understand that he had three out-apiaries. I am going down there to demand inspection of his apiaries, and he will say, "That's where I rear my queens, go and look at it." I look there and find no foul brood, but I don't know the condition of his out-apiaries, and as long as I have no law to go there and demand an inspection, he might say, "My bees are all right, and you mind your own business." Until we have a law of that kind I would not be willing to say who the party is, but Mr. York knows those in Cook County that have had queens from him, and their results are the same. They never had foul brood until they got queens from that dealer.

Mr. Hogge—The main point is, Do we want help from the legislature in the way of this compulsory clause. It is not a question whether somebody has been done good or not, but the question is, Do we want the inspector to be empowered so that he can go in case we do know, or do believe there is foul brood near us?

Pres. York—Do you want to put it to a vote?

Mr. Hogge—Yes, sir.

Pres. York—All in favor of having such a compulsory foul brood law in this State, raise your hands. [Practically a unanimous vote in favor.]

Mr. Clarke—Foul brood being carried by queen-bees, I would like to know in what way it is carried.

Mr. Smith—By the honey that is in the queen-cages, and by the no doubt taking out the infection of the queen-cage. I think it can be carried that way.

Mr. Kanenburg—As long as we have voted that we want this compulsory clause in the law, I wish to make a motion that—

Mr. Moore—Some of us may not know that the legislature meets only every two years, so nothing can be done until December, 1904. This is merely breaking the ground for what we want to do at that time.

Pres. York—What will you do with the report of the foul brood committee? They can do nothing more until the legislature meets, which is a year from this fall.

Mr. Starkey—Thank the committee for its work, and discharge it.

Dr. Miller—I want to mention one point which possibly might surprise you a little. There was a certain amount of money raised to pay the expense of the log-rolling that was to be done to get what legislation we could get. As you know, there were some of us who were appointed an auditing committee to look over the accounts of the treasurer, and one of the items that surprised me was a certain sum, something like \$9.00, that was turned into the treasury of this society that was left of the amount raised to pay for the work of that foul brood committee. Now, I would like to know why this committee didn't use up all the money in junketing? I don't understand it. So instead of this society being out any money, it actually made a profit out of it!

Mr. Horstmann—I like Mr. Starkey's motion, with the exception of discharging the committee. I think they should be continued. I offer an amendment, that the report of the

committee be accepted, that we thank the committee, and that it be continued.

Mr. York—With the consent of the second we will make that the motion.

A vote being taken, the motion was declared carried.

(To be continued.)



## Report of the Proceedings of the Colorado State Bee-Keepers' Convention, Held in Denver, Nov. 23, 24, and 25, 1903.

BY H. C. MOREHOUSE, SEC.

(Continued from page 37)

Next was a paper by R. C. Alkin, of Larimer Co., Colo., on the subject of

### HOW TO PRODUCE FANCY EXTRACTED HONEY.

The subject is not well stated. If it said "fine" or "No. 1" extracted honey, it would suit me better. The people who put up their honey in fancy packages are the ones who put up the fancy article. I believe I know how to produce a No. 1 article that may be sold as fine or No. 1. I am considerable of a crank on this subject, the same as in methods of management of bees.

What is No. 1 extracted honey? It is well-ripened and thick, and has a good flavor. The flavor depends largely upon the bloom; the body or quality depends largely upon the management. Many advocate and practice extracting before the honey is fully sealed. In a damp climate this is altogether wrong. In a dry climate it is not altogether wrong, but nothing is gained by it. Never, in any climate, extract before the combs are half to two-thirds sealed. Let it remain on the hive long enough to become all ripened. But to get a good article, that is not all. In extracting you always incorporate with the honey minute chips of wax and bubbles of air. Both of these, in their relation to honey, are impurities. The honey should be clear, and free from all impurities. As the honey weighs 12 pounds to the gallon, and the wax approximates 7 pounds to the gallon, if there are any chips of wax in the honey, gravity will separate them. The same is true of air. When a tank is filled with honey, it contains a large quantity of air. The warmer the liquid the quicker impurities come to the top. Almost any impurity will rise to the top. Therefore, it is necessary to have a large settling-tank. It not only secures well-strained honey, but is also a great saving in other ways.

A number of producers advocate extracting at the out-yards. Evidently they do not have a large settling-tank. It is true, many haul their honey home after extracting and put it in a tank. But I do say the man who fills his retail packages from a small tank will never have a first-class article. There will be too much foam and too much wax in it, and, when it reaches the consumer, there is something on the top that is not inviting to look at. A tank will also go a long way in eliminating thin or unripe honey, as it will rise to the top, while the faucet drains off the thick honey from the bottom. I have a tank of five tons capacity, and other tanks, besides. The large tank is one of the greatest of savers.

I haul all my extracting-combs home, and extract the honey and put it in the tank on the upper floor of the honey-house. It holds all I can extract in ten days. I am never bothered with honey overflowing, or being obliged to draw it off before it has all settled. When the honey is in the tank I let it remain as long as it does not candy. When it begins to candy I drain it off. It is a permanent investment. It cost me \$35 on board the cars at my station. It is of galvanized steel, and to-day the same tank would cost \$50. At that estimate, it amounts to half a cent for each pound of what it holds at one time.

Suppose one is anticipating a flow, and buys cans ahead, how much does it cost him? Not less than three-fourths of a cent per pound, and the cans will be gone when he sells the honey, while the tank will last for 25 or 30 crops. You don't have to store many crops before the tank pays for itself. Don't undertake to extract without a big tank.

In the tons and tons I have shipped and sold there was never a single complaint as to the quality of the honey. Everywhere it goes it is satisfactory, and the customers want more, and for the last two years I have not been able to supply the demand. Why don't they buy from the rest of the bee-keepers? One reason is, many do not produce the quality of honey that I do. They think it requires too much expense to remove the impurities, and that if the honey is candied

they have to liquefy it. Honey with granules in it can not be strained, except by gravity.

I was rather late with my extracting this year, and during the last two weeks extracted several thousand pounds that had more or less granules in. One chamber of combs with granules through the honey will so stop the cheese-cloth strainer that nothing will go through. The strainer I ordinarily use is a box set in the top-floor where I extract. Three or four inches from the bottom of the box is a wire-cloth covered with cheese-cloth. The honey, after going through this, passes out through a spout to the next floor below. When extracting combs that are slightly granulated, I have another box between the extractor and the tanks, divided into two compartments, one large where the honey flows in, the other an inch wide, and extending from the top to about an inch from the bottom with an overflow spout on the side opposite from that next to the extractor. With the help of this box I can extract all day long without interruption. The thickest and cleanest honey passes under the partition, and overflows from the top of the small compartment. It requires a box of considerable capacity to do the work; not less than would hold 100 pounds, and 200 or 300 would be better. If the honey were made to pass up and down several times instead of once, it would be more efficacious. So far, I have found that many impurities pass under the partition, and have to be skimmed later from the surface of the big tank. But the great body of chips of comb is left in the gravity strainer. The time the honey remains in the settling-tank depends upon the amount of heat and the thinness of the honey. If the honey is thick, and it is warmed, the impurities separate much more readily.

My tank is supported by a circular wall of stone-work, making a shaft at the bottom of which, in the cellar of the honey-house, is the heating stove. The tank itself is surrounded by a wall of brick at a distance of two or three inches, closed at the top so that the tank is kept enveloped in a volume of hot air. It is surprising how much difference it makes in the handling of honey to heat it. It is almost impossible to draw well-ripened honey through a nozzle an inch to an inch and a quarter in diameter. But when thoroughly warmed by a fire underneath, it runs three or four times faster.

When the honey in the tank is so nearly candied it will not run, if it is warmed and stirred with a stick it will run out as if it were greased. In the multitude of business I once had 800 pounds of honey candied solid in the tank. I did not think the fire below would heat it enough to make it run. My heater is an old range cook-stove enclosed in brick-work. I set that going and put in a heating stove besides, and fired that, and so softened that 800 pounds that I could draw it off. It was not liquid, but candied solid in a very few days.

As to the other end of the subject, the management in the yards, on the hives, I build up in the spring the same as for comb honey. But when it comes to equipment on the hives, I never produce extracted honey without a queen-excluding honey-board. Some say let the queen go anywhere. I don't allow that to influence me. It is economy in time to take off a chamber of extracting-combs and *know* it is all honey. It will cost twice the effort to get the bees out if there is brood. I don't shake the bees off; I smoke as many of the bees down as I can, and then take the chamber off just as it stands—just as I handle comb honey by the super—and set the chambers criss-cross over each other in the yard. They catch the infection of excitement from one another and begin to hustle out. The bees are practically all gone when I load up. I just put the chambers on, perhaps blowing in a little smoke. I have a large covered wagon, bee-tight, with an escape in it. When I load up almost all the bees are out, without having handled a single frame. If I take off the chambers when the bees are robbing I do the same, only I shove them right in the wagon and lock the screen-door. Each time I open the door again a lot of bees fly out, and, besides, there is a bee-escape in the wagon.

Therefore, you don't need to go to handling frames unless you want to, and you don't need to extract in the out-yards. You have to transport the honey in anyhow, and all the additional capital needed is an extra chamber for each hive, and you need that anyway.

Never produce extracted honey with one set of extracting-combs. The extra labor saved will pay for the extra set of combs. When you pay money to a laborer it is gone; but when you put it in extracting chambers and a honey-house it is still your money, and not the other fellow's. Don't stint necessary appliances—tanks, chambers, combs—put money in them at the start; it will pay better than putting a whole lot of work in extracting during the flow. Have enough extras to take the entire crop, and during the flow do nothing but



lift off, replace, and take home. There is no business sense in paying out for unskilled help a lot of money that may just as well be in supplies, and, having them, you are ready for a big rush, and out nothing but interest and insurance.

Therefore, equip yourself well with tanks, and do the bulk of the extracting when the flow is over, or nearly so, and by the time the packing is over you have just time to go to the convention and get straightened out for another year; and do as Mr. Hutchinson has been saying for a number of years, "Make it your business, and keep more bees."

R. C. AIKIN.

Before the discussion of Mr. Aikin's paper, the president appointed the following committees:

PROGRAM—R. C. Aikin, F. Rauchfuss, and Fred Hunt.

EXHIBITS—W. L. Porter, H. Rauchfuss, B. W. Hopper, Mrs. W. Lindenmeier, Jr., J. C. Carnahan, E. Milleson, Wm. Broadbent, and J. S. Bruce.

TRANSPORTATION—Arthur Williams (Secretary Chamber of Commerce), H. C. Morehouse, and W. P. Collins.

LEGISLATION—F. Rauchfuss, F. L. Thompson, and Fred Hunt.

H. Rauchfuss—One who has only 12 colonies can not afford to purchase 10,000-pound tank, and yet he can produce a good article without it. He should have sufficient combs to hold the whole crop, and produce no unripe honey. He can store it in cans or barrels, or smaller tanks, and strain and settle it, skim it; then wait until it is cool, not cold, for bottling. It should not be so warm that the stream of honey runs down into the vessel below, dragging small bubbles of air with it, nor so cold that it wavers from side to side, thus enclosing air. By observing these points one can produce a good article on a small scale.

Mr. Gill—I would like Mr. Aikin to extract the honey before it granulates at all. To handle partly granulated combs is a bother from start to finish. You can't get them clean, and they are not in nice shape for winter.

Mr. Garhardt—It would make a great deal of trouble for me to haul my honey home and put it in tanks. I use four thicknesses of cloth, take off the impurity and feed it to the bees again. I indorse the method of producing a pure article. I never have enough to sell because I can't produce enough. But it is very wrong to think of hauling the honey home to extract. It comes out so much easier when it is warm from the hives. I would have no time to do it with my 20 yards to attend to.

Mr. Jouno—How do you keep the bees from robbing when at out-yards?

Mr. Garhardt—There are some certain days when the bees are likely to keep on with their work. On such days I can extract for three hours without being bothered by the bees.

Mr. Aikin—I did not advocate letting the honey remain on until it begins to granulate. But if you let the combs remain until September or October it takes only a few granules to stop the strainer. The first flow of honey goes into the cleanest combs, and can be extracted without a granule, and will be solid in four weeks after extracting, oftentimes in two weeks. Mr. Gill, or any other man, may get caught by stress of work so as not to extract as soon as he would like to. I usually get the combs perfectly clean by wholesale feeding outdoors. I fill a barrel or tank with honey and water made very thin—one gallon of honey to four or five of water—douse the combs in it and hang them in a box, and set it so the bees can get at them. While they are doing that there is no robbing, and hives can be opened the same as in a flow. There is plenty of time when running 20 apiaries to haul the combs home, but you will find you will have to extract many a time when it is not the fit time to do so, if you extract at the out-yards. Any day when you can take off a thousand pounds you will have robbers when extracting, and it is foolishness to take off combs when robbing is going on. You can not take off a big crop and extract it during a honey-flow. I don't expect a large equipment, but I do expect properly ripened and properly clarified honey. Let it stay on the hive until thoroughly ripened, and have your tank deep, and then you may draw it in five-gallon cans. But those producers who find it expedient to do so do not repack it in retail packages. They sell it to their neighbors, or sell it to the trade in 60-pound cans. Every bit of honey that is packed in a retail package should be packed in a retail package in the first place. I have estimated I can sell even more extracted honey than I produce myself, and have hoped to receive honey from my neighbors and pack it, but find that only those who produce on a large scale produce a satisfactory article. In Colorado, bee-keeping is a business. The tendency is to specialize. The man who will not do business on a large scale will not be fitted to do business.

Pres. Harris—The convention should take up the subject of queens. The vital importance of queens should be carefully considered.

(Continued next week.)

## Dr. Miller's Answers

Send Questions either to the office of the American Bee Journal, or to Dr. C. C. Miller, Marengo, Ill.

### Honey and Rheumatism.

I have read that some people were cured of rheumatism by the stings of bees. I have a customer who is very fond of honey, and as she has the rheumatism badly, and is under the doctor's care, she is advised against eating honey. She was also at a Michigan bathing sanitarium and not allowed to eat honey there. Will Dr. Miller answer this?

OHIO.

ANSWER.—The fact that some people are cured of rheumatism by means of stings does not necessarily prove that eating honey is good for rheumatism. Honey and bee-poison are two very different things. Yet I have never understood that the use of honey was contraindicated in rheumatic cases. It is possible that in the case in question some particular condition makes it advisable to deny the use of all sweets; but it is safe to say that if they are at all allowed it will be better to use honey than sugar. That able authority, Dr. Kellogg, at the head of one of the most noted sanitariums in the world, endorses the use of honey as being more readily assimilable than sugar.

### Questions by a Beginner.

As my health failed me, and my mind was very unsettled, I decided to keep bees, as I thought they would take my attention. I started with 5 colonies to winter, and bought 13 more in May, 1903. They were in 8-frame hives. I made extra stories, put 7 frames in the top story; and I also made 16 new 10-frame hives, thinking the 8-frame hives were not large enough. I extracted 800 pounds of honey from 13 colonies.

1. Which are the best, the 8 or the 10 frame hives?
2. I did not extract any buckwheat honey in the fall; I left the supers on. Would it have been better to have taken them off?
3. When is the best time to put them on in the spring?
4. When do you put the top stories on?
5. How do you find the queen in the case of a weak swarm which you wish to put back in the hive?
6. How do you tell when the colony has no queen?
7. How do you introduce a queen into a queenless colony?
8. How do you avoid swarming?
9. When is the time to extract?

NEW YORK.

ANSWERS.—1. After living with you for a year I might give a better guess as to which is best for you. Without so long a sojourn I'm pretty safe in saying you would better have the larger hives if you're working for extracted honey. For comb honey the large hives are also better, unless you give the business close and careful attention. It is lighter work, however, handling smaller hives, and in some cases that is an import matter.

2. Unless the brood-chamber was well filled with stores it was well enough to leave some honey above. But you might have the supers taken off the hives and put some of their combs of sealed honey in the brood-chamber.

3. A good time to take out of cellar is when you see the red maples in bloom, or as soon thereafter as weather seems fairly settled.

4. Put on the extracting-super as soon as you see bits of white wax daubed on the sides of the top-bars or on the upper part of the combs. If white clover is your first source of surplus, put on supers when you see the very first clover bloom. Better give supers a week too soon than a day too late.

5. One way is to put excluder-zinc at the hive-entrance.

allow the swarm to enter, and watch for the queen on the zinc.

6. Look for eggs or unsealed brood. If you find none, and it is at a time when the other colonies have plenty, give a frame of young brood and if no queen-cells are started you may guess that a young queen is present but not yet laying. If queens-cells are started the likelihood is that no queen is in the hive.

7. Put the queen in a provisioned queen-cage, and let the bees free her.

8. As you are working for extracted honey, you may do a good deal toward it by giving abundance of room.

9. Extract any time when a comb is sealed or nearly sealed. When the white-honey harvest is over and a flow of dark honey coming on, extract all the white honey before the dark gets mixed in.

You ought to get a bee-book. That advice ought to be worth five dollars at least to you; but seeing it's you I'll give it to you free. If half of those 18 colonies live through, and you get a bee-book this winter, if you will say next fall that it wasn't worth five dollars to you, I'll apologize with my hat off.

### Feeding Sugar Candy in Winter.

Is it too late to make candy for colonies that have but little honey left? They seem to be strong with bees. Some of my bees did not store enough honey to last them until spring.

MARYLAND.

ANSWER.—No, it's never too late to give candy to a colony that is short. There's many a colony lost from starvation that might be saved by 50 cents worth—yes, in some cases, 10 cents worth of candy.

### Hive-Entrances Covered with Snow.

We are having lots of snow in this section of the State, and there is a heavy fall of snow every 2 or 3 nights of the week.

1. Would it do to keep the hive-entrances free from snow?

2. Can too much heat be gotten up in a hive by keeping the entrances shut up by snow?

MICHIGAN.

ANSWERS.—1. Yes, it will be all right to keep the entrances clear.

2. There isn't much danger of it with loose snow at the entrance, but it isn't well when the snow becomes water-soaked and freezes up, so that the air can not enter the entrance.

### Spreading Brood—Open-Air Feeding—Smoky-Looking Honey.

1. Do you consider the practice of spreading the brood-combs in the early summer, to secure greater brood area, of sufficient advantage to justify the risk?

2. I have quite a lot of ill-flavored honey in excellent white combs. I want to feed it to the bees next spring. The hives being packed, I shall be obliged to feed in the open air. How can I do so without having the combs torn to pieces by the bees?

3. What causes the smoky appearance on combs of sealed honey soon after winter sets in? Does it render the honey unwholesome for food? Can it be removed? If not, how can I prevent it?

PENNSYLVANIA.

ANSWERS.—1. In the face of the fact that able men advocate the practice, I dare not condemn it. Yet, in the hands of many, and in most places, it is a safe thing to let it alone. I may say for myself that if I should practice it, it would generally be at a loss. If I should find a colony of bees covering well five combs, with brood only in four, I see no reason why I might not move one of the outer combs into the center, and thus more quickly get five combs filled with brood. But I do not find them in that way. As a rule they have all the brood they can cover, and if any spreading is done, it is pretty sure to mean chilled brood. So I do not practice spreading brood. Possibly with a different locality or with different bees, practice might be different.

2. If you have a very large quantity, you may spread it out so that the bees can get to it with the greatest freedom, and if there is plenty of it so there need not be any crowding, there will be little or no tearing of combs. But with a small quantity that will not work at all. A way that is safe in any case is to go to the opposite extreme. Pile up

the honey, and leave an entrance large enough for a single bee. If you have a pile with about a hundred sections, then you may leave an entrance at the top and bottom, and if the pile is still larger leave an entrance for each 50 sections, the entrances each large enough for the passage of a single bee, and at different parts of the pile. It is easy to make an entrance at the middle of a pile by shoving one corner of a super to one side, then partly closing the entrance thus made with a piece of tin or otherwise.

3. I don't know. It looks like mould, and may be something after that order. It doesn't seem to do any harm, and I think disappears when warmed up by the presence of bees. Possibly other heat will help it. Keeping honey in a warm, dry place will probably prevent it. If any one can tell us more positively about it I shall be glad.

### Shape of Hive in Which Bees Work Best.

When giving bees plenty of room, which way will they work the best, in a wide hive, or a narrow one built up higher? That is, will they work as well in a 10-frame as an 8 frame hive with the same amount of room?

MISSOURI.

ANSWER.—Just so far as the bees themselves are concerned, the nearer a hive comes to the globular form the better it will suit them. So a hive measuring the same in height, length, and width would suit them best of all forms of six-sided hives; but there are other considerations having reference to the convenience of the bee-keeper. The old-fashioned straw-skep is no doubt a better dwelling-place for bees than any modern hive, but it would not suit the bee-keeper. You would probably notice no difference in the working of a colony in a hive with 8 or with 10 frames, unless the colony should be too large for the smaller hive.

### Prevention of Swarming.

I am anxious to know how you managed your 100 colonies (as you report on page 4) to keep them from swarming. I have a yard of 220 colonies and would like to know a sure plan of procedure to keep from increasing.

In your judgment, what is the best method of keeping bees from swarming, in yards of 100 colonies or more, and run for comb honey exclusively?

WISCONSIN.

ANSWER.—I don't know. With me it has been a matter of cutting and trying for years, and I don't feel settled about it yet. Neither, if one were settled about it, would that settle the question for every one else. What works exactly right in one place may work differently elsewhere. What works right for one man in a given place might not work exactly right in the same place for another man. With my present knowledge—I may think differently six months from now—I can give no better answer to your question than this:

Look through the hive every ten days and destroy queen-cells with eggs in them. When a colony is found with cells farther advanced than to contain eggs, or at the most very young larvæ, remove the queen, destroying queen-cells, and ten days later destroy cells and give a young laying queen. With me that colony will need no farther attention; I can't say how it would be with you. If a young queen cannot be given at the end of ten days, the old queen, or another old queen may be given; but in that case watch must be kept for future swarming.

Do you mean that you're going to keep 220 colonies in one yard? I didn't know so many bees were kept on one spot in Wisconsin. Won't you tell us as to your success? How many have you kept in one apiary heretofore, and with what success?

### Sectional Hives—Carniolans or Italians.

What do you think of my plan and hive? I am going to the eastern part of this State to engage in the bee-business, having sold out here. The winters are very cold and long, and no bee-weather from the first of November until about the first of April, often getting as cold as 25 degrees below zero, but the summers are very warm. The honey-flow lasts from June 1 until August 15, and the land is not under cultivation to any extent. It is hilly and wild, a good chance to sow sweet clover and other honey-plants; 15 miles to market, 65 miles to Albany. Now, bees do not winter



well there on Langstroth frames; if they winter at all they are very little good for surplus. I am thinking of using a sectional hive, each body to measure  $13 \times 13 \frac{1}{2}$  by  $7 \frac{1}{4}$  inches deep, inside measure; it would give about the same comb-surface as the  $9 \frac{1}{4}$ -inch Langstroth frames for the two sections. I would winter the bees on the two bodies, or more if needed. There are plenty of bees in the woods, as I have cut trees there that had over 300 pounds of honey each. The super would take 21  $4 \frac{1}{4}$ -inch sections. Would that be surface enough? I do not intend to produce much section honey, mostly chunk and extracted. Would such a hive do for that kind of honey? I can make each section of hive 1 inch deeper— $8 \frac{1}{4}$ ; would it be advisable, or is  $7 \frac{1}{4}$  deep enough?

What do you think of me getting Carniolan queens and using to build up with, and then Italianize?

If you do not think my hive would do, what would you advise? I want one size, and one only, as I know what different sizes in one yard mean—vexation.

NEW YORK.

ANSWER.—You are right in saying that frames of different sizes in the same apiary are a "vexation." To some extent also there is always danger of vexation from having a frame of different size from what others are using, and you will do well to do some hard thinking as to whether your own "get up" of hive and frame will be enough better to warrant you in blazing a path of your own.

Do you know that Langstroth frames would not work well for wintering in the cellar? and are you sure that wintering in the cellar is not best in that locality? However, the hive you mention would work all right for chunk or extracted honey, as would also others.

A surface for 21 sections would work well, although rather small.

If you use frames shallow enough to require two stories, you will probably do well not to have them so deep as  $8 \frac{1}{4}$  inches.

It would hardly be advisable to build up one kind of bees and then change to another. Start at first with the kind that you think will suit you best.

### Color of Goldenrod and Aster Honey.

I would suggest with regard to New Hampshire's sample of honey (page 10), that it might be wild-aster honey. Such honey is water-white and of good flavor. My bees, in September, carried in much of such honey. It was the first that I had ever had, that I am aware of. I have kept bees only since 1896. This past fall the wild aster in this section bloomed in great profusion, even after the first light frost, and the bees worked on it as they do on buckwheat.

MISSOURI.

This is something new to me. I have always had the impression that asters, goldenrod, and most other fall flowers gave dark honey. Asters and goldenrod are plentiful here, but the bees seem to pay little attention to them, so I have not had any chance to become familiar with honey of that kind.

### Horizontal Hive for Out-Apiary and Extracted Honey.

Although I have handled bees as a side-line for a number of years, with varied results, I am comparatively a tender-foot. I use 8-frame dovetail hives, and work for comb honey, but my bees have increased beyond the requisite number to hold in one apiary, and obtain best results, and wishing to start an out-apiary, run for extracted honey, with the least possible increase and attendance, and having seen a plan suggested in an eastern farm journal, and wishing to consult some person with more experience than myself, I submit said plan for your consideration and comment. It is as follows:

Hive-bodies to hold 20 brood-frames, running crosswise of the body, the frames and bees being transferred from the old hive to the new, and closed up behind with followers until the honey-flow, when the extra space is filled with combs or foundation. Only one story is used—no tiering up. Do you think such plan practical to attain desired results? If so, when would you advise transferring and moving? Any other suggestion or plan you might think better will be highly appreciated.

IOWA.

ANSWER.—A horizontal hive, such as you mention, is somewhat largely used in Europe, and to a limited extent

in this country, where it is called the Long Ideal hive. O. O. Poppleton, one of the successful veterans, after many years' experience with them, is a strong advocate of such hives. Whether you would like them as well as 8 or 10 frame hives, tiered up to make the same capacity, is a question not easily determined without actual trial. Your wise course would be not to try more than two or three of them the first year. It will be most convenient for you to move colonies to the new apiary in the 8-frame hives, transferring the frames into the larger hives as soon as the 8-frames begin to seem in danger of being crowded. Then, trying them side by side, you can better determine whether it will suit you best to use a hive containing 20 frames, or 8-frame hives three stories high. If you expect to do much moving of colonies, you must figure on the difficulties of moving such large hives.

### Queen-Cages and Introducing Queens.

1. On page 248 of your "Forty Years Among the Bees," you say, under substituting queen-cells—the first thing is to provisions a number of queen-cages with the usual queen-candy, tacking a piece of pasteboard on the end of the plug. Is not this candy intended for the bees to liberate the queen when she is out of the cell by gnawing out this candy? If this is the case, then what is the pasteboard for?

2. Do you put the cell in the cage any way just so the lower end is free, or do you use care to place it in a certain position?

These questions may appear somewhat out of season, but I am beginning to get things ready for next season's work and reading up on queen-rearing, I find that I do not quite understand you.

MISSOURI.

ANSWERS.—1. The object of the pasteboard is to make the bees longer in getting into the cage. In most cases it is probably not necessary. Indeed, in many cases it might not be necessary even to have the candy, because for some reason the bees seem less inclined to tear down a cell in a cage than when it is freely exposed on the comb.

2. The cell is put in any way that comes handy, just so the point is clear for the young queen to get out of the cell.

Your questions are altogether timely; for it is a good way to have your plans made in advance. It would have been a great privation to me if all my life I had been deprived of the pleasure of planning in winter what was to be done the following summer.

## Hasty's Afterthoughts

The "Old Reliable" seen through New and Unreliable Glasses.  
By E. E. HASTY, Sta. B Rural, Toledo, Ohio.

### MESQUITE—HOLY LAND BEES.

In that remarkable quartette of pictures on page 785, we see a mesquite grove. Isn't it the first view we have had of this remarkable semi-desert shrub? Hardly looks as my fancy would have pictured it.

The three people who are proving to us that Holy Land bees *sometimes* are clever—well, they think they are smart. "Sometimes" is a big word with any race of bees. And such pictures do not prove nearly so much as the general public would infer from them. 'Spects it would be within the limits of possibility to illustrate Punic or Egyptians, or any other hot-footed race, with just such pictures.

### HONEY AS CANE-SUGAR ALREADY DIGESTED.

Remarkable sentence of Dr. Kellogg's: "Digestion of cane-sugar converts it into honey, so honey is practically cane-sugar already digested." I would suggest that we do not crow too much over this till we see what the multitude of other authorities say to it. Will they say it's right, or nearly right, or will they hammer it badly?

Much experimenting with my invalid self on this point (with preferences in favor of honey to start with), persistently turns out about like this: Six ounces of honey eaten at one time, or six ounces of granulated sugar eaten at one time—the sugar agrees with my stomach fully as well as the honey, and *harmonizes with other food previously eaten better*. I would be glad if it turned out the other way. Won't

do to forget how full—chock-full—the world is of folks who in dealing with a subject in which they are professionally interested, are continually selling a horse to themselves. Page 787.

#### "GUARDS" OR "SENTINELS" OF THE HIVE.

Yes, the Britisher is clearly wrong in calling the professional guards at the door "scouts;" but he's right about there being such a class. Our English cousins rather delight in getting different terms from those we use. (Or is it we that delight in rejecting terms they have previously established?) At any rate, sometimes they beat us badly; but this time they missed it. "Guards" and "sentinels" are better terms than "pickets," because pickets in war are usually stationed off at a distance, as these are not. While the bee that follows us around endlessly may be a degenerated guard, I almost incline to doubt it—a degenerated robber, more like. Page 787.

#### MORE GENERATIONS, MORE PROGRESS.

Half-sister to your fortieth grandmother, eh? Mr. Crum certainly gets the "go ahead" part of the old maxim to a remarkable degree, but the "be sure you're right" part seems to be endangered a little. Still, I think his theory of the more generations the more progress, a hopeful one to operate on. If it should be that a certain look of the queen goes with a certain quality of the worker progeny, the apiarist may "catch on" and be guided by that. Page 788.

#### THOSE BULK-COMB HONEY-FOLKS.

So the bulk-comb folks think they are going to make their boom run clear across the country. Well, let 'em try it; variety is the spice of life; only let 'em refrain from cultivating suspicion, and continually whispering that, "This is the sure way to have genuine honey." Suggestive that no one who gave up sections has gone back to them—but perhaps time enough has not elapsed yet. You remember it took quite a few years for the bicycle boom to "catch cold." Interesting to see that the trade has mostly come down from the biggest cans to small sizes. Well, Homer, if you make section honey "almost disappear," the sad trouble of basswood lumber being all used up will be much mitigated, won't it? We can hope to teach folks to like candied extracted honey; but I don't believe we can ever make them admire nice comb, uncandied itself, but stuck together with candied stuff—and first we know some of the boys will be putting in part glucose! We must scratch, and dig, and bark some more till we conquer the problem of a non-granulating sort of extracted.

## Our Bee-Keeping Sisters

Conducted by EMMA M. WILSON, Marengo, Ill.

### Her Bees Did Very Well.

My bees did very well this year, considering the time I had to care for them. I had 9 colonies last spring. I increased to 18 colonies, and took off 1600 pounds of No. 1 white comb honey. I have sold it nearly all at 15 and 16 cents a pound. MRS. M. THOMPSON.

Kane Co., Ill., Dec. 1.

That is a fine report. At 15 cents per pound your honey brought you \$26.66 per colony, to say nothing of the increase. I think it is almost a slander on your bees to say they did *very well*. I should call that excellent work.

### A Swarming Time With Swarms.

I thought I would let you know what the bees did the past summer. I got from 1 to 3½ 24-pound cases from each colony. They swarmed, and swarmed, and swarmed, until I did not know what to do with them. As I had no more empty hives I doubled them up. Several of the new swarms swarmed. I left the old colonies by the side of the new until the seventh day, then moved them away, then had after-swarms; 2 left for the woods. I did not lose any prime swarms, as I keep my queen's wings clipped.

I love the bees, and love to work with them. I long to

hear their hum again. I do not spend all of my time with the bees, as I have other work. This has been a severe winter so far. It has been from 16 to 20 degrees below zero for several days; sleighing is good. The bees have not had a flight since Nov. 15.

I winter my bees on the summer stands without any protection, packed with leaves on top. I have had fair success wintering this way, when they have plenty of stores.

My honey is all sold, and has been for some time. I got from 12½ to 16 cents per pound. I sold some of it in the home market, but the most of it at the house. I could sell more if I had it.

The most I know about bees I have learned from the American Bee Journal. MRS. L. MACK.

St. Joseph Co., Mich., Jan. 6.

Our blessings often come in disguise, so perhaps you did not realize what a blessing it was that you did not have any more hives, and were thus obliged to double up. It is not so much the number of colonies that counts, as the number of bees in a colony. Good, strong colonies are the ones that winter best, and give us the honey.

Sometimes the bees seem to go crazy, and swarm, and swarm, until there is scarcely anything left of them. In such cases it is best to double up until you have colonies of sufficient strength.

### A Pastoral Occupation.

As Arcadia would have been imperfect without the sweet pipings of Pan, so pastoral life would be incomplete without the hum of bees. To those who love country life, and the care of bees, how fondly upon the heart fall these lines from Rogers:—

"Mine be a cot beside the hill;  
A bee-hive's hum shall sooth my ear;  
A willow brook that turns a mill  
With many a fall shall linger near."

But if this idyllic life be denied to one who loves it, yet a taste of its sweetness may be within reach, for even a small garden, if adorned with trees and flowers, and picturesquely set with bee-hives, has a savor of rusticity.

Like Goldsmith's Mr. Hardcastle, who seized every opportunity to talk about the Duke of Marlborough and Prince Eugene, so the enthusiastic bee-keeper is always fond of talking about bees.

Certainly, bees are a most fascinating subject, and one no more wearisome of seeing them enact their same little drama, year after year, than one does of seeing, times without number, the unfolding of old, familiar flowers. Then, too, the many unsolved mysteries of a bee's life give additional fascination, of course, to the study of apiculture, while as regards robber-bees, the deeds of these invaders and of the defenders, are certainly quite as romantic and thrilling as any exploit of feudal times. But the culmination of tragedy is reached when we read of how, in the tropics, ants and wasps sometimes invade hives, kill the workers, and carry off the queen, much in the same manner I fancy, that the Romans must have carried off Thusnelda. What compassion one feels for the fate of those poor little honey-makers and their queen!

Good tenants deserve good landlords, but bees, as well as people, sometimes pay a very high rent for a very poor house. How more worthy of stings than honey is that landlord who gives his bees a miserable home, and how his conscience, at least, must sting him, if in spite of all their disadvantages, his little tenants pay him a surplus far exceeding their rent!

I once visited an apiary which reminded me of the wretched tenement houses found in large cities. Every hive was so weather-beaten and old, that some of them were seemingly falling to pieces. One of them had even no alighting-board.

Another apiary which I beheld, had a hive festooned with spider-webs in every available place, while on the side of one of the hives, a large body of ants were sealing the wall. The owner of these hovels informed me that he had lately hived a swarm in a hive containing dead bees and rubbish, which he had found no time to clean, but that his swarm was now engaged in cleaning out their dwelling. In fact, he gave but little attention to bees, he said, which, indeed, an observer of his apiary could readily believe. What a sin to give these industrious little insects such habitations! What marvel that they did not all take wing and find homes in the friendly hollow of trees!

There is a tradition that ants dislike salt, but I have



seen them tripping gaily and nonchalantly over salt that I have scattered about a bee-hive. The best remedy that I have found for keeping ants away from hives, was to anoint the legs of the bee-stand with kerosene, using it, of course, judiciously, so as not to injure the bees.

When one is wearied from housework, or when a listless, tiresome visitor has just ended a call, what a relief and tonic to the nervous system it is to go out among one's bees. Here one beholds cheerful activity, and hears delicious melody. Ah! what pastoral delights are encompassed within a bee-garden, even if perspective and foreground should happen to be small!

In reflecting upon the wonderful lessons that these lit-

tle creatures teach, of industry, patience, and order, this extract from Swedenborg, in relation to bees, comes as a closing and fitting ending to our sketch:

"Many other surprising facts are related of these animals; but the fore-mentioned are a sufficient proof that on account of their uses to mankind, they are instructed by a divine influx, through the spiritual world, to model for themselves such a form of government as exists among men on earth, and even among angels in heaven. How plainly must every man of uncorrupted reason perceive that such instincts are not communicated to bees from the natural world! for what virtue is there in the sun of the natural world, to contrive a form of government so exactly corresponding with the celestial?"

Wayne Co., Ind.

KATE V. AUSTIN.



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## FROM MANY FIELDS

### A Good Report—Prospects Good.

The bees did wonders this season. I got nearly 5000 pounds of comb honey from 48 colonies. The flow lasted here from the beginning of June to the first part of August, but the fall crop was lost by too much rain and cool weather. I was more than pleased, as I sold the honey as fast as the bees could produce it.

The outlook for next season is good. White clover will be well preserved if the snow stays on the ground.

Rock Co., Wis., Dec. 21.

CHAS. LUEBKE.

### Bee-Houses—A Correction.

I notice, on page 30, I am made to say that my bee-houses are open at the top in very warm weather. It should read that the hives open at the top. My bee-houses are shingled with the best shingles I can buy, and have a door at each end to let the air through.

I have taken the American Bee Journal only a few months, but I should have taken it years ago if I had known how good it is.

Linn Co., Mo., Jan. 15.

IRVING LONG.

### Hasty's Ballads and Texas "Critters."

MR. EDITOR:—If there is any difficulty in filling up the "Old Reliable" with suitable matter during the winter months, when bee-keepers may be supposed to be less "strenuous" than at other times, might I suggest that you get Mr. Hasty to dive into the cavernous recesses of his mind after more ballad? (See page 8.) That little snatch he favored us with was irresistibly droll, and you know "A little nonsense now and then is relished by the best of men." May be it owes something to the application he gave it, as a rather indifferent jewel might gain by a fine setting.

I wonder if the man of H's [H. H. Hyde] will feel called upon to give an exhaustive answer to those questions. Lest he should

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not, let me tell Mr. Hasty that whatever might be the case, if a "critter" of the kind got him (Hasty) in its clutch, the particular lovely vision depicted had none too tight a hold on our Texas brother, otherwise he could not have escaped so soon after the honey-moon to be "one of the boys" on that California trip. Moreover, I, who had opportunity to observe the manner and bearing of the gentleman in question, will give my testimony that it was anything but that of a love-lorn swain.

As to keeping them off, Mr. Hasty, "critters" of that ilk are no doubt much the same in Texas as elsewhere. You might find tobacco-smoke pungent enough to avail somewhat. It ought to be entirely effective, but unfortunately one can not warrant it in all cases. While their natural instinct is against it, constant association blunts the sensibility of the "critters."

NEBRASKA.

### Bee-Keeping in Southern Georgia.

Bee-keeping here in southern Georgia is mostly on the old-fashioned style—gums made of hollow logs and goods boxes, etc. The strain of bees is blacks, and are so spiteful that some of the gums are never robbed at all.

I have been keeping bees in this style for 15 years. Last year I got all the information I could from bee papers and books, and transferred my apiary of 59 colonies to the 8-frame Langstroth hive. I lost one colony in the operation, increased to 83, reared some queens, bought some, and improved my strain of bees. I got 1550 sections of honey, all No. 1, which I sold at 12½ cents each. And I want to say, I don't want to keep bees in the old-fashioned way any more, although I was successful and had good crops of bulk honey every year, and got 10 cents per pound; and for some I got 12½ cents. One contributor seems to approve of this plan, as it is so cheap, and has gone so far as to count up the expense for several years ahead on the improved method. Yes, and I am figuring ahead, too, but my bees will pay their expenses, which they did this year, and built all their combs from 1-inch starters.

When I started to transferring in the spring, other people, as well as bee-keepers, laughed at me and said I was silly, and my name is still going as a bee-crank.

My comb honey was all sold as fast as I could take it from the hives, but the chunk honey was harder to sell.

I will keep bees on a somewhat larger scale another year, and I am expecting to have a partner or helper.

The "Old Reliable" is a welcome visitor to my home, and I wish it was a daily instead of a weekly (through the winter, anyway). I think I have read every line in every copy since I subscribed.

J. J. WILDER.

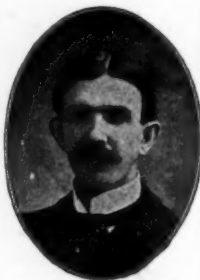
Dooley Co., Ga., Dec. 10.

### Best Season in Many Years.

The best honey season was 1903 since I have kept bees, and I have been at it since the latter part of the '60's. The early part of the season was cold and rainy, so the bees did not do much, good—in fact, I had to do a good deal of feeding, and doubled back from 36 to 33 colonies; but after the middle of June the bees went to work in earnest, both in gathering honey and swarming. It was not a very fast flow, but right steady, without any intermission, until near the middle of August, when there was a little let-up for about 10 days or 2 weeks, when they went at it again, and carried in over 1800 pounds more of late honey. My bees increased from 33 colonies to 51, 4 became queenless, and I doubled them back to 47, all in fair condition.

My crop of honey for 1903 is 8360, 437 pounds being in 1-pound sections. If I had been prepared for such a run I could have had 10,000 pounds, easily. I got out of supplies and extracting-combs, and had to let several colonies be idle. One colony with a queen became disgusted with things and swarmed out. I saw them hanging in a tree for an hour or two, but let them go to try their luck elsewhere.

My bees are still on the summer stands; I can not find a suitable day to put them into the cellar. The weather is so gradually get-



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ting cold that they can not get out to have a cleansing flight, and I would not like to take them into the cellar without it; in fact, I like to make the time that they are in the cellar as short as possible.

FRED BECHLY.

Poweshiek Co., Iowa, Dec. 30.

### Cleaning Extracting-Combs and Unfinished Sections.

As there has been some discussion lately in regard to getting extracting-combs cleaned of honey, I will give my method, which has always been successful with me.

Stack up the supers containing the combs 30 or 40 feet from the hives containing the bees. As soon as a few of the bees have found them, put on covers, and tack a piece of lath over the entrance, in which a couple of notches are cut just large enough for one bee to pass in or out at a time. Don't put any combs out until you have finished taking off the honey, so you will not have to open the hives while the bees are working at the combs. Put the first lot of combs out a little before sundown.

For getting partly-filled sections cleaned of honey, make two frames of lath just large enough to hold 8 sections each. Stretch wire across one side of the frames to prevent the sections from falling through. Fill the frames and extract. After the bees have worked a day or two on the piles of extracting-combs, place one or two supers filled with sections on top of each pile of extracting-combs. The bees will not tear the combs as they will if the sections are placed in a pile by themselves. If you avoid opening hives while the bees are cleaning the combs, no robbing will occur.

D. I. WAGAR.

Wayne Co., Mich., Dec. 22.

### Swarms Settling in the Same Place.

Permit me to record an observation in reference to swarming habits. It may be useful to those situated like myself, within the confines of a few city lots. Of course, clipping the queen's wings settles the problem instantly; hence it is for those who work their apiary otherwise.

Fifty percent of my swarms alighted on the same branch last spring. I generally left them clustered some time, owing to the pressure of official work. I imagined that gave the bees time to do some little work preparatory to comb-building, and, consequently, left the branch on which they clustered permeated with the odor of honey. How would it be if one were to daub a branch or two in their yard with honey? Would it tempt the flying queen to alight? What think you is the explanation of so many of my swarms alighting on the same branch? I do not think it due to the convenience of location. Has any one a like experience to mine?

E. D. RUSSELL, M. D.

Webster Co., Iowa, Jan. 12.

### Alfalfa and Sweet Clover—An Entrance Regulator.

As the bee-season is over it seems to be in order to report our success, be it great or small. I have done very good business this year, and while I have not produced the usual amount of honey I have increased to a large number of colonies, and should they winter well I shall be kept very busy the coming season. The bees have gone into winter quarters in fine shape.

I am located in a basin of some 2000 acres in the foothills of Grand Mesa. The land is all in alfalfa, and all along the irrigating ditches are immense bodies of sweet clover, that lasts long after the hay is all cut and stacked. Talk about sweet clover being a noxious weed! Why, the stock in the large pastures eat it off while it is young and tender, until it scarcely gets into bloom, and I don't understand why a certain class of people are so opposed to sweet clover. It is very easy to kill it out in hay land. In cutting 3 crops of hay it never ripens any seed, and so cannot do any damage to hay; it is only in waste-places that it flourishes, and I certainly think all this talk on the subject will soon be dropped.

I see that one correspondent would like a

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hive-entrance that could be closed to suit conditions. Now I have adopted a plan of my own. I take a 2-inch crate-staple, drive it up and down the edge of the sides of the body of the hive, commencing at the side of the entrance and extend up 2 inches. Suppose you have an entrance of one inch, now take a thin strip of board  $\frac{1}{4}$  inch and 1 inch wide, slip it through the staples from the side, the same as a bar, and drive the staple up against the 1-inch strip so that it binds slightly. You can raise the slat at will and have any size entrance from 1 inch to close up, which for moving bees a short distance is very handy, and I could not think of dropping this feature after once using it.

The old American Bee Journal is getting to be one of the most able bee-papers extant, always containing something new and entertaining.

W. H. BEVERLIN.

Delta Co., Colo., Dec. 15.

### Chunk Honey Sells Best.

I have been keeping bees part of the time, and a part of the time the bees have been keeping me, for over 30 years. This has been one of the best seasons we ever had in this country. Chunk honey sells here better than section honey. I have tried nearly all sizes of hives, and the 8-frame is the best for this locality, as a larger size affords but little surplus.

M. R. LYLE.

Bates Co., Mo., Dec. 22.

### Perforated Separators—Trowel for Trimming Top-Bars.

I notice in the American Bee Journal that A. F. Foote has been trying separators with holes in them. I have tried them and like the plan, only I do not make the holes as large as a 16-gauge wad-cutter. About  $\frac{3}{8}$  inch is the size I used, some with one hole for each section and some with 5 holes to the section. I had no trouble with the bees building the combs to the separators; all were nice and straight.

Did any one ever try a plastering-trowel to cut the combs off the tops of the brood-frames? Just try one and see how it works.

H. W. KEITH.

Greene Co., Mo., Dec. 14.

### Wintering Bees on Sugar Candy.

On page 924, some bee-keeper from Iowa doubts the advisability of feeding candy, made of sugar and water, to bees in cold weather, and wants to know whether from personal experience such candy can be made to do as some say it will. Let me answer this question from actual experience.

Four years ago, late in the fall, in Cass Co., Mo., I discovered several colonies of bees in almost destitute condition, not having over 5 pounds of honey each, and the weather was too cold to feed syrup; I began to think I had acted very unwisely in not observing closer, but concluded to make the best I could out of a bad job.

Having several copies of the Busy Bee on hand, I began to search very diligently for a remedy, and found the candy remedy. I at once procured the sugar, and very carefully went to work for results. I used a small 2-burner gasoline stove to do the cooking, as I could regulate the heat to suit me. I made cakes of candy for each colony, weighing from 8 to 10 pounds. When the candy was cooled and caked it looked like rock candy, very hard and clear, as though a bee could never do anything with it. But I went ahead, as directed, and right over the cluster I laid 3 flat pine sticks,  $\frac{3}{8}$  inch wide and 7 inches long, crosswise of the brood-frames, and upon those pine sticks I laid the cake of candy, and placed an empty super on the hive. I then filled the super with burlap, tucking down close to the edges, so no cold could enter from the sides or ends of the hive, put a little weight on the cloth, so it would settle down close, put on the cover, and let them go.

Every one so treated wintered finely, without loss, some of the candy remaining until fruit-bloom the next spring; others use every particle of the sugar given them.

In my experience with sugar candy the

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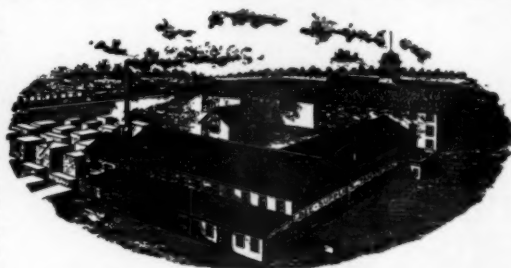
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secret lies in the making of the candy. If you are in too great a hurry you would better postpone the making until you get control of your patience, because if you scorch the candy the least bit it is not fit for bees, and is almost sure death to them. So I wish to say that the recipe, in a time of scarcity of honey, is a valuable one, if the proper precaution is taken for the preparation. I don't know whether Mr. Abbott is the originator of the recipe or not, but let him be who he may, he has conferred a great favor on the bee-keeping fraternity, if they will be cautious in its preparation, not to scorch or burn in the least. As for myself, if I could prepare the candy myself, I can winter a colony on the verge of starvation. I know it is all right, if properly done. J. B. AUSMUS.

Benton Co., Ark., Dec. 26.

### Appreciates the Bee-Papers.

My duties in the railway office compel me to work with my bees mornings and evenings, and I find it very pleasant and healthful, as well as a remunerative recreation. I have been very successful, so far, and I feel that it is mostly due to the reading of the "Old Reliable" and other bee-papers. I could not get along without reading such papers, if they cost me five times as much as they do now.

GEO. H. REA.

Jefferson Co., Pa., Dec. 24.

### Wired Combs from Starters.

Dr. C. C. Miller, in reply to "Virginia" on page 795, says: "No, you cannot be sure that the bees will build the septum directly on the wire." Virginia had asked if it would tend to insure strong, well-built combs to wire frames when only starters were given. My experience would lead me to advise the wires, for it is very rarely, with me, that the bees fail to build the septum on the wires, and I always wire frames, even with half-inch starters. I find two parallel wires sufficient, and it is difficult in most cases to distinguish combs from starters and those from full sheets of foundation. I am not, however, an advocate of starters. I prefer full sheets, as a rule.

C. S. HARRIS.

Volusia Co., Fla.

### Moths Don't Come from Butterflies.

I would like to point out a glaring error in a letter signed "Nebraska Subscriber," appearing on page 797. He is talking about the moth—*Galleria cerella*—and says: "One of the bee-keepers wanted to know what made the moth. It is the butterflies," etc.; and further on he adds: "I kept all the butterflies killed off this summer and am bothered no more."

I would like to point out that a butterfly and a moth are quite separate and distinct insects, as much as any two different species of birds, say a robin and a whip-poor-will! Therefore he might kill every butterfly in Nebraska, and not be doing the moth one particle of harm.

Butterflies and moths are two groups of insects which together form the order Lepidoptera. All butterflies are diurnal in their flight, while moths with many exceptions are crepuscular or nocturnal. The antennae of all butterflies agree in having their ends "knobbed" or "clubbed," hence the name for them, *Rhopalocera*; while the antennae of moths are in no case ever knobbed or clubbed, but may be prismatic, serrate, pectinate, moniliform, or filiform, and owing to this variety of antennae moths have been termed *Heterocera*.

In butterflies the antennae are straight, and stand out rigidly in front of the head, while in moths they are usually curved and can generally be folded back on the body. There are 5 main groups or families of butterflies, viz. Papilionidae, Nymphalidae, Erycinidae, Lycaenidae, and Hesperidae. While moths are roughly divided into Sphingidae, Bombycidae, Noctuidae, Geometridae, Pyralidae, Tortricidae, and Pterophoridae.

It would be quite impossible for any butterfly to lay an egg that would produce any kind of moth, quite as impossible as for a queen-

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### CONUNDRUM.

What ought to be the difference between one yard and two yards? Page 16 bar Garden Fence.

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bee to lay an egg that would produce a hornet or a yellow-jacket.

The correspondent is also mistaken in thinking that eggs are deposited on the bees, as no bee would suffer any moth to take such a liberty with her. It is a great deal more likely that the bees take the eggs into the hives with their loads of pollen, as I have often seen the moths hovering around any bloom that bees frequent, and it is most likely that they lay their eggs on those plants, and the bees may accidentally gather some of them with the pollen.

The remedy for moth is: Keep nothing but pure Italian bees, and you will never be troubled with them any more.

"A BEE-KEEPER IN VIRGINIA."

Augusta Co., Va., Dec. 17.

### A Beginner's Report.

The "Old Reliable" is a fine paper. I would not like to be without it for twice its price. I am just getting a start with bees. I bought a colony in August, 1902, transferred them on full sheets of foundation, and fed them sugar syrup the first of September. They came through the winter in fine shape. From the one colony, spring count, 1903, I got 3 good swarms, and from the first 2 swarms and parent colony I got 75 pounds of surplus honey, and all went into winter quarters with plenty of stores.

I winter my bees on the summer stands, with cushion frames on each side of the cluster, also a cushion on top, and plenty of outside protection. O. C. HOTZE.

Monroe Co., Ind., Jan. 3.

### A Swarm on a Hat.

During the swarming season of 1903, I had a swarm come out and alight on my hat that I was wearing. My assistant gave me another hat, so all I had to do was to take my hat off and shake it in front of a hive.

My crop of honey was very good for last year.

I had 25 colonies, spring count; increased to 35. H. GIBSON.

Ontario, Canada, Jan. 11.

### A Good Report for 1903.

This is my third year in the business, I had 38 colonies of bees last spring, built up to 84, and had 4210 sections of honey to ship. I shipped 1912 sections to North Dakota, and 464 sections to Nebraska, and sold at home 1454 sections, and the balance I still have. The honey shipped brought me 12 1/2 cents per section, clear of freight and crates. Honey is very plentiful here; this is the best year in the history of the State for bees and honey. There were bees everywhere. I could have built up to 200 colonies if I had wanted to out of 37 colonies. I put from one to five in a hive, and had to put on supers and let the bees up in them to give them room to work. I got as high as 150 sections off some of the early swarms.

I put the bees in the cellar Dec. 4 in fair shape, and hope they will come out in the spring in good order; and that next year may be a good one for honey, and not so many swarms. E. B. PRITCHETT.

Warren Co., Iowa, Dec. 26.

### A Discouraging Season.

The past season has been a very discouraging one to western Nevada bee-keepers. Prospects were never better in the early part of the season. A heavy frost on Sept. 5 completely killed off all nectar-producing flora, consequently the second crop of alfalfa produced no honey—"Nevada's honey-producer." Prices also slumped; all the beekeepers of this locality sold for 8 and 7 cents, respectively—No. 1 and No. 2 comb honey—and 4 cents for extracted, with the exception of three of us, who managed to get 11 and 9 cents for comb honey. The crop was of excellent quality and grade when well handled.

I am thinking seriously of going out of the business. High prices on bee-keepers' supplies, to say nothing of long-distance freight-rates and steals, and depreciating values of

honey, makes it discouraging, to say the least. Farm laborers to-day, in Nevada, can save more than the average bee-keeper with his 200 or 300 colonies run to their utmost capacity.

Bees are wintering finely up to this date. Hardly a day, so far, that the bees could not take a flight. Rather cold nights, but not serious.

What has happened to Yon Yonson? He must be off sleighing or skating; perhaps digging a bee-cellar. About time he was bobbing up again. I guess he got mixed up with "Central" over his pumpkin crop. Come again, Yonson. **SAGEBRUSH.**

Washoe Co., Nevada, Jan. 4.

"Yon" will soon be on hand again. It is not his fault that he has not been heard from lately.—EDITOR.]

### A Good Year for Swarming.

I started last spring with 54 colonies of bees. We had very warm weather in March, and it was cool and dry during April and until about May 7, but from that time on we had plenty of rain all the rest of the summer and fall. I got about 3800 pounds of honey, some of the nicest I ever saw; only a little buck-wheat honey.

It was a good year for swarming. I did not care for any increase so I tried to prevent it. My first swarm came out June 27, and then after that for 3 weeks they would swarm any way if it did look like rain. I had a swarm come out when it was raining hard. I have a home market for my extracted honey, but ship some of my comb honey to commission merchants.

I started in the winter with 70 colonies; I winter them on the summer stands. There has not been a day they could fly since Nov. 13; we have had steady cold weather up to this date. **C. F. BAKER.**

Allegany Co., N. Y., Dec. 30.

### Honey All Sold Out.

Bees are doing well up to this date, and all have plenty of stores. Honey is in good demand, selling for 5½ cents wholesale here at home, and none to be had at that. No snow in the mountains at the present for irrigation for another year. We can't tell what may come before the first of next June.

**G. W. VANGUNDY.**

Uinta Co., Utah, Dec. 29.

### Bees Did Well.

I am in love with bees as much as ever. I had 14 colonies to start with in the spring, which I transferred into new hives, but found the combs in very poor condition. I could use only about one-third, and the rest had to be built new. Taking all into consideration, I think they did fairly, for they increased to 20 colonies (all in first-class condition), and stored about 1000 pounds of fine comb honey. I will be ready for business the coming season.

I have been trying to get subscribers for the American Bee Journal, but have not succeeded so far. I have neighbors who are keeping from 5 to 20 colonies, some getting a little honey and others nothing at all. I asked my next-door friend how much honey he got from his 10 colonies; he said, "25 pounds." I told him the only way to succeed is to take a bee-paper and study. But most of them, rather than pay out a dollar, go without it, and lose more than a hundred by it. I would not think of keeping bees without any bee-literature. **WM. MILLER.**

Yakima Co., Wash., Dec. 31.

### A Wintering Experience.

My bees were neglected a good deal this year, for I was too busy to give them the proper attention, but I got a small surplus—385 sections and 36 frames of honey, by using double hive-bodies, from 13 colonies, spring count. Last winter I wintered my bees on the summer stands, one-half facing south, and banked up and over the top, and packed between with straw held in place by boards, the hives one foot apart. Now, in this half

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### CONVENTION NOTICES.

**Utah.**—The spring convention of the Utah Bee-Keepers' Association will be held April 5, at 10 a.m. and 4:30 p.m. Among other important questions to be considered will be the World's Fair, our State Fair, and the Portland Fair of 1905. We also desire to formulate some plan, if possible, to further increase the fraternal interest for the mutual benefit of our bee-keepers. We cordially invite all bee-keepers to be present. We also invite them without delay to send in their views on these and other topics. The convention will be held in the City and County building, in Salt Lake City.  
**Salt Lake City, Utah. E. S. LOVESY, Pres.**

**Wisconsin.**—The annual convention of the Wisconsin State Bee-Keepers' Association will be held in the Capitol, at Madison, on Wednesday and Thursday, Feb. 3 and 4, beginning at 10 a.m., Wednesday. We are and have been doing our utmost to make this the most enthusiastic convention ever held in the State, and a most complete and interesting program will be presented. We are at this time assured of 8 papers on interesting subjects, by prominent bee-keepers, among them George W. York, W. Z. Hutchinson, and of course President and General Manager France. A free to all question-box will also be a part of the program. We urgently invite all who are not members, to participate with us; it will pay you in every way—in fact the social part alone is worth it. Come and get acquainted with our visitors and the bee-keepers of the State. Reduced rates will be given by the hotels, and the railroad fare will be 1½ for the round trip. Just ask your agent for a 1½ fare round-trip ticket. It will save lots of time if members, and all those wishing to become such, will remit their annual dues to me prior to the convention. The dues are \$1.00, which also makes you a member of the National Association. Exhibits of honey are solicited, and suitable premiums will be awarded.  
**Augusta, Wis. GUS DITTMER, Sec.**

so packed I lost 5 colonies; they had plenty of stores, all the dead colonies having from 2 to 4 frames of honey. Now, the other half was a trifle more exposed to the weather, and were not banked up excepting when there was snow, then I shoveled snow up and around them, and these came out without a single loss; these latter faced east.

This year I have 16 colonies in the cellar, and 3 double-deckers out-doors. Those out-doors are pretty "hot ones," and I don't think it possible for a little cold weather of 30 or 40 degrees below zero to cool them down. Anyway, they have over 100 pounds of honey each, and from my experience with them I believe them perfectly able to protect it. One of those outside colonies is the colony I took from that bee-tree I wrote about three years ago. I have never taken a pound of surplus honey from this colony, or captured a swarm that issued, so I have concluded that where a colony has been in the timber in a wild state, as this one was (it had been in the tree for at least four years), they are predisposed to abscond; at least my experience with this one has so proven to me; and next spring, if nothing happens, this queen will attend a "pinching bee."  
**LEWIS LAMKIN.**

Woodbury Co., Iowa, Jan. 11.

### No Rain in Southern California.

To date, Southern California has had no rain. Heavy rains in Northern California did not reach us at all, so that now all are alarmed at the prospect, and have about given up hope for any honey in 1904.

We have over 500 colonies of bees, and fortunately have a car-load or so of honey to feed back. **G. F. MERRIAM & SON.**

San Diego Co., Calif., Dec. 31.

### Good Season for Bees.

I commenced the season with 50 colonies of bees in fair condition, and fed one barrel of sugar in the spring before the honey-flow commenced. The bees commenced gathering about May 20, and gathered enough for brood-rearing, and that continued until June 28, when the real honey-flow from the linden began, and my crop from that source was about 2000 pounds of fine white extracted honey. Then the flow was slow again until the first of September, when the asters and goldenrods, of many varieties, commenced to yield another real harvest for the bees. So ended the season with bees in good shape for winter. I have about 80 colonies in all, and 3000 pounds of surplus honey.  
**A. J. MCBRIDE.**

Watauga Co., N. C.

### Season of 1904—Selling Honey.

I had 10 colonies, spring count, and on Sept. 10, 1903, I had taken off and sold 2030 of the finest one-pound sections of comb honey I ever got; also 360 pounds of extracted honey—poor sections mashed and pressed. I have also on hand about 25 pounds of extracted honey for home use, and about 23 pounds of wax. I am not kicking, although I had to do some hustling in June and July.

My best record was from a prime swarm hived June 4, and it gave me 219 pounds of fine section honey. That queen will be my breeder this year.

My bees are all snugly packed in leaves on the summer stands, and all were out very thick on Dec. 31.

Some may wonder how I got rid of my honey so quickly. I have taken great pleasure in reading in the "Old Reliable" about how to peddle honey, but as I am situated I can not go peddling, so I hit on a way of my own—and it worked.

I am located near a power-plant, which is 2½ miles up the beautiful Iowa river, and the same from Iowa City (State University), and every fine Sunday there are crowds up to our dam, boat-riding (also week days), and nearly all take a rest and visit our electric plant. Here is where I got my chance, and every Sunday I always aimed to have two nice supers of honey all cleaned up, and one super just as it came off the hive, on my long bench near a good window. Of course, I always had nice, clean paper on the bench. Saturday



would tie up about 30 to 50 nice sections ready for my "flies" on Sunday. (Naughty, did you say?) Well, I can not tell you how people admire fine honey, and the questions they ask; some would ask if the bees made it, and others would ask whether it was good to eat. Taking up one of my "fly balts," I would give it to a lady, tell her to try it and let me know next time she was up how it tasted. There is where my trouble began, for after my first "baiting," I could not keep up with my orders, for they would come out in huggies and get their honey—for it was honey this year. I could have sold twice my crop. I will not have to give "balts" away in 1904, for I have plenty of standing orders for 1904—if we get any honey.

The record for 1904 is one I am not ashamed of, considering the other work I did during the biggest honey-flow we have had here for 18 years, to my knowledge.

I have read lots of bee-books during my life (44 years), but the book I think the most of (and laugh the most when reading it), is a little paper-covered book by Richard Smith, and published at Oxford, England (my home), in 1839. It is about 36 years ago since the old bee-keeper gave me the book, and if he could only see how we handle bees to-day, he would think that in his day they knew very little.

JOHN T. PAINTIN.

Johnson Co., Iowa, Jan. 2.

### Results of the Season.

My crop was about 48 pounds per colony this year, all comb honey, which I sold for 20 cents a pound, all in one-pound sections.

C. S. GUERNSEY.

Litchfield Co., Conn., Dec. 28.

### Fear They Won't Winter Well.

My bees are snugly packed away on the summer stands, and I am hoping they will come through the winter all right; but I am somewhat fearful they will not, for while they had plenty of stores they were short on bees.

G. T. WILLIS.

Vermillion Co., Ill., Dec. 30.

### Bees Wintering Well so Far.

So far my bees have wintered well. During the latter part of the month of November they had good flights on 3 days. In December, up to the 16th, it was too cold for the bees to be out, but in the last 2 weeks we have had 8 days that the bees could fly, and on 3 days the thermometer went up to 56 degrees, F., in the shade, including Dec. 30 and 31. We have had very little snow, and the lowest point reached was 6 degrees above zero.

WM. STOLLEY.

Hall Co., Nebr., Dec. 31.

### An Old Bee-Keeper.

I have been keeping bees ever since 1855, with intermixture of success and failure. I now have about 55 colonies in the cellar, I think in pretty fair condition. Their contented, low hum, when I made them a visit seem to say, "All is well." I am past 85 years old, but I enjoy working with the bees yet.

N. SANDERS.

Henry Co., Ind., Dec. 31.

### A Beginner's Experience.

In January, 1903, I bought some bees, brought them home, and piled the hives on top of each other on the south porch—a good, warm place. They had a flight, and then the weather turned cold—18 degrees below zero—and I thought I would bring the bees into the house (bee-room, adjoining room with fire) until the cold snap was over. The entrances were screened, and we went away from home one day, and some one (my wife) forgot and left the door open, and they got warmed up, and a whole raft of them got out some way, and when we arrived home the bees were everywhere. To prevent domestic trouble I put them outside again, and did not put them in the same place where they were before, and when they flew again they mixed

up and fought, and the next morning I found 4 queens kicked out of the entrances. Later on they commenced to get too friendly (1). I set them a rod or so in front of the porch, and when they flew back they came, and come they did, right under the door in the house. I set some of them back on the porch to save them, and how they fought and came in under and around the door—trouble is no name for it. I sat out by those queenless colonies and knocked robbers on the head, waiting for the queens I had sent for to come (in place of uniting, as I should), and how they would come dead; but the robbers wouldn't come that way a bit.

But the strangest part is, that with all this discouragement and loss I don't get discouraged and quit. I believe I would in some other line of business. A. B. TACKABERRY.

Van Buren Co., Iowa, Dec. 22.

### A Profitable Season.

This has been a very profitable season for bee-keepers in this locality. The prospect is not so good as last season, still we can't tell; there seems to be considerable white clover left for next season. The average amount of honey sold, per colony, spring count, for 1903, was about \$9 or \$10, besides some for home use.

JACOB SEIBOLD.

Champaign Co., Ill., Dec. 19.

### Poor Honey-Year—Swarming.

We have had a very poor year for honey. I had 7 colonies in the spring; I shook one and lost it, one of my best, too. I quit shaking then and increased to 18 by dividing, and got perhaps 100 pounds of nice honey in small frames, but no sections were finished. Some of my colonies are very small, but are doing well. I examined them Dec. 24. We have had an exceedingly dry, cold fall and winter so far, still the bees seem to be in better shape than usual.

I wish some advice. We have peculiar conditions here to deal with. Our best and shortest honey-flow is from the poplars; they begin to bloom usually about April 15 to 25, and last say 3 weeks. This crop is a very certain one, too. I never knew them all to be killed by frost but once since I can remember, which is over 40 years. This poplar honey is our finest honey; very thick and rich, but the trouble is, the bees are in the midst of their swarming fever right at the very time they are most needed for this flow. We have swarms here as early as March 20, sometimes. If any one can tell me how I can keep my bees from swarming until after this early and valuable flow, he will do me a great favor.

P. T. LEMASTER.

Spartanburg Co., S. C., Dec. 31.

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## HONEY AND BEESWAX

### MARKET QUOTATIONS

**CHICAGO, Jan. 8.**—The new year opens with a quiet trade in honey, retailers having usually a supply from the stock laid in to make a good show at the holiday time. Prices are without essential change in No. 1 to fancy comb, which brings about 13c; very little doing in off grades at from 16@3c less. Extracted, white grades, bring from 6@7c, according to flavor and other qualities; ambers about 1c less; especially weak are those lacking in flavor and body. Beeswax steady at 28@30c.

R. A. BURNETT & CO.

**CINCINNATI, Jan. 8.**—The market on comb honey has weakened, as the supply has been larger than the demand. Fancy water-white, 14c; off grades, lower. Extracted, amber, in barrels, 5 1/4 @ 5 1/2 c; in 60-lb. cans, 1/4 c more; alfalfa, water-white, 6@6 1/2 c; fancy white clover, 7@8c. Beeswax, good demand; 30c for nice.

C. H. W. WEBER.

**PHILADELPHIA, Jan. 13.**—There has been very little call for honey since the holidays. The first two weeks of the year are the duller during the season; people become somewhat surfeited with sweets, lessening the demand. The market is somewhat weaker, with quite a few arrivals. We quote fancy comb at 15@16c; No. 1, 13@14c; amber, 12c. Extracted, white, 7 1/4 @ 8c; amber, 6@7c. Beeswax, 31c. We are producers of honey and do not handle on commission.

WM. A. SELSER.

**ALBANY, N. Y., Jan. 15.**—Honey market extremely dull since the holidays and cold weather. Quotations are nominal, and asking prices mostly. We are quoting 15c for fancy white; 14c for A No. 1; 12@13c for dark and mixed, but would shade these prices now rather than lose sales. Extracted, inquiry improving somewhat, especially on the buckwheat and darker grades.

H. R. WRIGHT.

**CINCINNATI, Nov. 23.**—The demand for comb honey is slower now than it was six weeks ago, owing to the enormous quantities offered on all sides. Fancy comb is sold in single case lots at 14c. The supply of extracted honey is big, although the demand is good. We are selling amber extracted in barrels at 5 1/4 @ 6 1/4 c. White clover, in barrels and cans, 7 1/4 @ 8 1/4 c, according to quality. Beeswax, 30c.

THE FRED W. MUTH CO.

**BOSTON, Dec. 21.**—The demand for honey continues good, with an ample supply of comb, and a light supply of extracted. We quote our market as follows: Fancy white comb, 16@17c; No. 1, 14@15c; and practically no No. 2 to offer. Extracted, 7@8c, as to quality.

BLAKE, SCOTT & LEE.

**KANSAS CITY, Dec. 30.**—Instead of our honey market improving, it has grown worse as far as comb is concerned. The receipts have increased and fancy comb and No. 1 have been sold as low as \$2.50 per case of 24 sections. We do not look for any improvement in prices before February, if then. We quote: Fancy white comb, 24 section cases, \$2.60; No. 1, \$2.50; No. 2, \$2.40. Extracted, white, per lb., 7@7 1/4 c; amber, 6@6 1/4 c. Beeswax, 25@28c.

C. C. CLEMONS & CO.

**NEW YORK, Dec. 4.**—Comb honey is arriving in sufficient quantities to supply the demand, and, as to the quality, most of the white honey seems to be off color, more or less. We quote fancy white at 14c; No. 1 at 13c; amber, 11@12c; and buckwheat, 10c. Extracted, light amber, at 6c; white, 6 1/4 c; Southern, 55@60c per gallon; buckwheat, 5 1/4 c. Beeswax, 28@29c.

HILDRETH & SEGELKEN.

**SAN FRANCISCO, Jan. 6.**—White comb, 1-lb. frames, 13@14 cents; amber, 9@11c. Extracted, white, 5 1/4 @ 6c; light amber, 4 1/4 @ 5c; amber, 4@4 1/4 c; dark amber, 3 1/4 @ 4c. Beeswax, good to choice, light, 27 1/2 @ 29c; dark, 25@26c.

Spot stocks are not particularly heavy, but trade is slow. Only for most select qualities does the market show firmness.

## HONEY AND BEESWAX

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